DENON

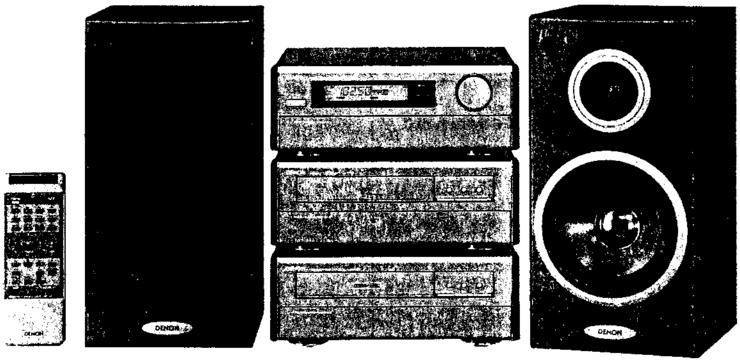
Hi-Fi Personal Component System

SERVICE MANUAL

PERSONAL COMPONENT SYSTEM

UNIT No. UDRA-70 (MW LW FM Stereo Receiver)
UNIT No. UDR-70 (Cassette Tape Deck)
UNIT No. UCD-70 (Compact Disc Player)

D70 A70



The D-70 Personal Component System consists of the following:

Receiver Section	UDRA-70
Remote Control Unit	RC-142
Cassette Deck Section	UDR-70
CD Section	UCD-70
Speaker Section	USC-70

MAIN FEATURES

- **30 FM/AM station random preset tuner**
  - * Random presetting makes for easy operation and will come in handy when the FM stations increases in the future.
- **Power amplifier designed for quality sound**
  - * 30W + 30W high quality power amplifier.
- **SDB control**
  - * Super dynamic bass control for clear low bass sound.
- **Super linear converter and high performance digital filter**
  - * DENON's unique systems for preventing loss of CD sound quality create an excellent sound field.
- **Editing circuit included**
  - * When performing edited recording onto tapes, tracks can be selected automatically so that the blank space on the tape is minimum.
- **Dolby B, C N.R**
  - * For playback and recording with high quality sound.
- **CD SRS circuit**
  - * CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**

Check that the following parts are included in the package aside from the main unit:

① Operating Instructions	1
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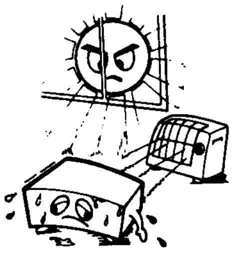
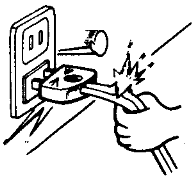
NIPPON COLUMBIA CO., LTD.

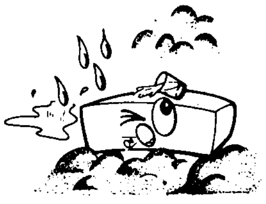
NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO/NOTAS SOBRE EL USO/ALVORENS TE GEBRUIKEN/OBSERVERA



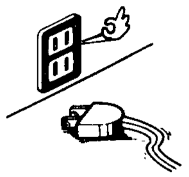
- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine zureichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.
- Evite altas temperaturas
  Permite la suficiente dispersión del calor cuando está instalado en la consola.
- Vermijd hoge temperaturen.
  Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst.
- Undvik höga temperaturer.
  Se till att det finns möjlighet till god värmeavledning vid montering i ett rack.



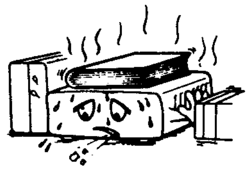
- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.
- Maneje el cordón de energía con cuidado.
  Sostenga el enchufe cuando desconecte el cordón de energía.
- Hanteer het netsnoer voorzichtig.
  Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld.
- Hantera nätkabeln varsamt.
  Håll i kabeln när den kopplas från eluttaget.



- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.
- Mantenga el equipo libre de humedad, agua y polvo.
- Laat geen vochtigheid, water of stof in het apparaat binnendringen.
- Utsätt inte apparaten för fukt, vatten och damm.

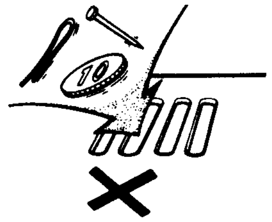


- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
- Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo.
- Neem altijd het netsnoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt.
- Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid.

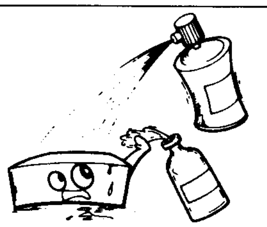


*(For sets with ventilation holes)

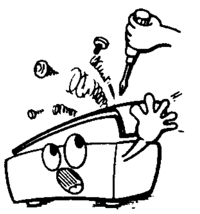
- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.
- No obstruya los orificios de ventilación.
- De ventilatieopeningen mogen niet worden beblokkeerd.
- Täpp inte till ventilationsöppningarna.



- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.
- No deje objetos extraños dentro del equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten.



- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.
- No permita el contacto de insecticidas, gasolina y diluyentes con el equipo.
- Laat geen insektenverdelgende middelen, benzine of verfverdunner met dit apparaat in kontakt komen.
- Se till att inte insektsmedel på sprayburk, bensen och thinner kommer i kontakt med apparatens hölje.



- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo.
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifiëren.
- Ta inte isär apparaten och försök inte bygga om den.

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(UDRA-70 only)

IMPORTANT

(BRITISH MODEL ONLY)

The wires in this mains lead are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

SAFETY IMPORTANT

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: **USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSAETTELSE FOR STRÅLING.**

VAROITUS: **LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.**

VARNING: **OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.**

"CLASS 1
LASER PRODUCT"

GENERAL SECTION

MAIN SPECIFICATIONS

- **Receiver Section (UDRA-70)**
  Amplifier
  Practical maximum output: 30W + 30W (40 Hz ~ 20 kHz)
  Bass adjustment: 100 Hz ±8 dB
  Treble adjustment: 10 kHz ±8 dB
  SDB (Super Dynamic Bass): 80 Hz, +8 dB
  Included jacks: PHONO (MM Cartridge) Input jacks (input sensitivity 2.5m/V47 kohms)
  DAT/VCR: Input jacks output jacks for recording (input sensitivity 150mV/75 kohms)
  Headphones jack: 3.5 mm mini-size jack
- **Tuner**
  Reception frequency range: FM: 87.50 MHz ~ 108.00 MHz
  MW: 522 kHz ~ 1611 kHz
  LW: 153 kHz ~ 279 kHz
  Reception sensitivity: FM: 1.5 µV, 75 ohms (SN ratio 30 dB)
  MW: 20 µV (SN ratio 20 dB)
  LW: 35 µV (SN ratio 20 dB)
  FM stereo separation: 35 dB (1 kHz)
  Max. external dimensions: 250 (W) × 96 (H) × 354 (D) mm (9-27/32" × 3-25/32" × 13-15/16")
  Weight: 5.3kg (11 lbs 11 oz)
  Power supply: AC 220V, 50 Hz (for Europe model)
  AC240V, 50 Hz (for U.K. model)
  Power consumption: 100W
- **CD Player Section (UDCM-70)**
  Wow & flutter: Below measurable limits (±0.001% W.Peak)
  Playing time: 60 minutes/one side
  Sampling frequency: 44.1 kHz
  Light source: Semiconductor
  Max. external dimensions: 250 (W) × 96 (H) × 312 (D) mm (9-27/32" × 3-26/32" × 12-9/32")
  Weight: 2.8kg (6 lbs 3 oz)
- **Cassette Deck Section (UDR-70)**
  Type: Horizontal 4-track, 2-channel auto reverse stereo cassette deck
  Heads: 1 hard permalloy head for recording and playback, 1 double-gap ferrite head for erasing
  Tape speed: 4.75 cm/s
  Included circuits: Dolby B and C
  Wow & flutter: 0.06% or less (W.R.M.S.)
  Usable tapes: Normal, chrome and metal tapes
  Max. external dimensions: 250 (W) × 96 (H) × 312 (D) mm (9-27/32" × 3-25/32" × 12-9/32")
  Weight: 3.2 kg (7 lbs 1 oz)
- **Remote Control Unit (RC-142)**
  Type: Infrared pulse
  Number of buttons: 38
  Max. external dimensions: 65 (W) × 175 (H) × 20 (D) mm (2-9/16" × 6-57/64" × 25/32")
  Weight: 130 g (approx. 5 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers. (W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

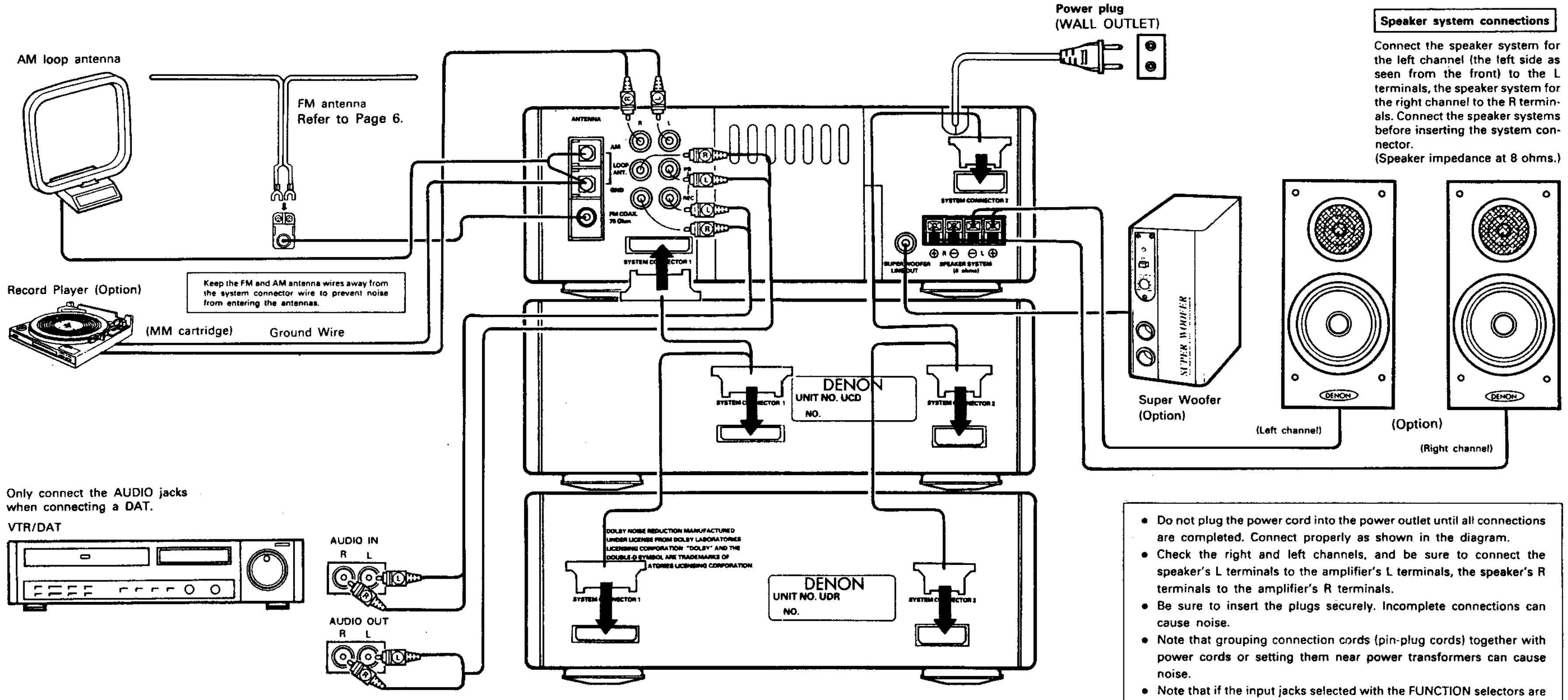
Only discs with the mark at the right can be played on this system.

COMPACT
disc
DIGITAL AUDIO

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

	D-70 for Europe model	D-70 for U.K. model
Receiver Unit	UDRA-70	UDRA-70
Cassette Deck Unit	UDR-70	UDR-70
CD Player Unit	UCD-70	UCD-70
(Master) Carton	501 1582 004	501 1582 004
Control Card Base	513 1389 006	513 1389 006
Thermal Carbon Film	513 1349 004	513 1349 004

CONNECTIONS


AM loop antenna
FM antenna
Refer to Page 6.
Record Player (Option)
(MM cartridge)
Ground Wire
Power plug
(WALL OUTLET)
ANTENNA
AM
LOOP ANT.
GND
FM COAX. 75 Ohm
R
L
PB
REC
SYSTEM CONNECTOR 1
SYSTEM CONNECTOR 2
SUPER WOOFER LINE OUT
⊕ R ⊖ ⊖ L ⊕
SPEAKER SYSTEM (8 ohms)
DENON
UNIT NO. UCD
NO.
DOLBY NOISE REDUCTION MANUFACTURED UNDER LICENSE FROM DOLBY LABORATORIES LICENSING CORPORATION. "DOLBY" AND THE DOUBLE-D SYMBOL ARE TRADEMARKS OF [illegible]ATORIES LICENSING CORPORATION.
DENON
UNIT NO. UDR
NO.
Super Woofer
(Option)
SUPER WOOFER
(Left channel)
(Option)
(Right channel)
VTR/DAT
AUDIO IN
R L
AUDIO OUT
R L

Keep the FM and AM antenna wires away from the system connector wire to prevent noise from entering the antennas.

Only connect the AUDIO jacks when connecting a DAT.

Speaker system connections

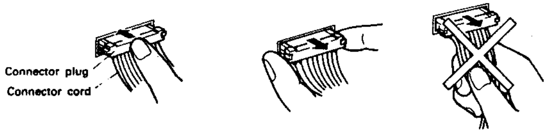
Connect the speaker system for the left channel (the left side as seen from the front) to the L terminals, the speaker system for the right channel to the R terminals. Connect the speaker systems before inserting the system connector.
(Speaker impedance at 8 ohms.)

- Do not plug the power cord into the power outlet until all connections are completed. Connect properly as shown in the diagram.
- Check the right and left channels, and be sure to connect the speaker's L terminals to the amplifier's L terminals, the speaker's R terminals to the amplifier's R terminals.
- Be sure to insert the plugs securely. Incomplete connections can cause noise.
- Note that grouping connection cords (pin-plug cords) together with power cords or setting them near power transformers can cause noise.
- Note that if the input jacks selected with the FUNCTION selectors are open (if nothing is connected), the sound may leak to another component connected to different input jacks.

Connecting the System Connector Cord

When connecting the system connector cord, press on the center of the connector plug until you hear a click.

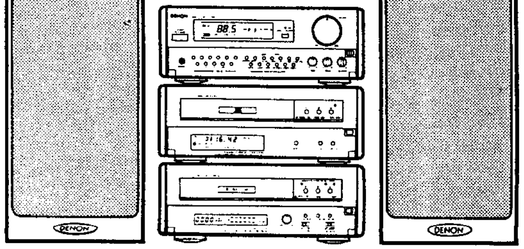
When disconnecting the system connector cord, press the sides of the connector plug towards the middle and pull.


Connector plug
Connector cord

Note that disconnecting by pulling on the cord can damage it.

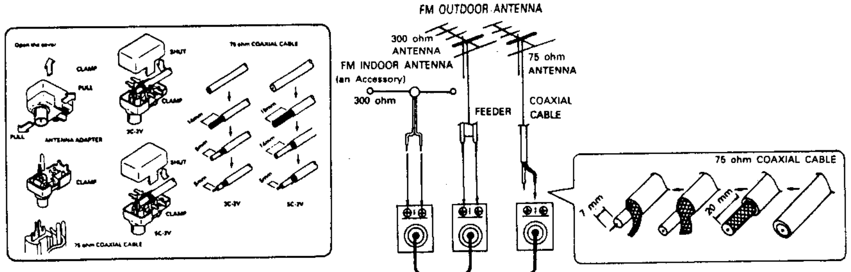
NOTE
This system includes digital circuitry, so it may cause problems with the colors on a TV. If so, turn the system's power switch off.

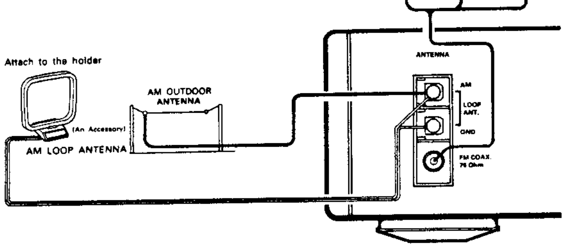
The sets can also be placed next to one another.
(Set the receiver on the very top.)



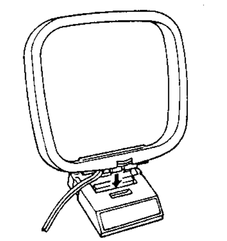
ANTENNA CONNECTIONS

Connecting the Included Antennas


Open the cover
CLAMP
PULL
PULL
ANTENNA ADAPTER
SHUT
CLAMP
3C-2V
SHUT
CLAMP
CLAMP
5C-2V
75 ohm COAXIAL CABLE
75 ohm COAXIAL CABLE
3C-2V
5C-2V
FM OUTDOOR ANTENNA
300 ohm ANTENNA
FM INDOOR ANTENNA (an Accessory)
300 ohm
FEEDER
75 ohm ANTENNA
COAXIAL CABLE
75 ohm COAXIAL CABLE
7 mm
20 mm

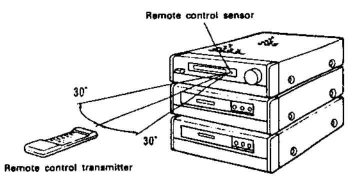

Attach to the holder
AM OUTDOOR ANTENNA
(An Accessory)
AM LOOP ANTENNA
ANTENNA
AM
LOOP ANT.
GND
FM COAX. 75 Ohm

Assembling the Loop Antenna



- Remove the tie fastening the loop antenna's lead and connect the lead to the antenna terminals.

REMOTE CONTROL UNIT

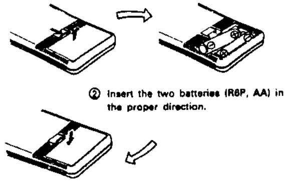

Remote control sensor
30°
30°
Remote control transmitter

- The remote control unit can be used a straight distance of approximately 7 meters from the remote control sensor, but this distance will be shorter if there are obstacles in the way or if the remote control unit is operated from an angle.

" 🄱 " appears at the upper left corner of the tuner's display when signals are received.

- Be careful that the remote control sensor is not exposed to direct sunlight or strong light from lighting fixtures. If it is, the remote control unit may not work.
- When adjusting the volume from the remote control unit, the volume will stop changing if the remote control transmitter is moved away from the remote control sensor. Press the button again to continue changing the volume.

Inserting the Batteries

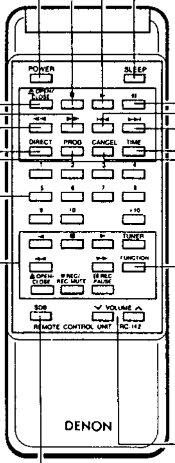


① Open the battery case lid on the back of the remote control unit.

② Insert the two batteries (R6P, AA) in the proper direction.

③ Set the battery case lid back in place.

Button Names and Functions


POWER
SLEEP
OPEN/CLOSE
DIRECT
PROG
CANCEL
TIME
+10
TUNER
FUNCTION
OPEN/CLOSE
REC/REC MUTE
REC PAUSE
SDB
VOLUME
REMOTE CONTROL UNIT RC-142
DENON

Stop button (■)

Press this to stop CD playback.

POWER button

Press this to turn on the power for the entire system or set it to standby.

OPEN/CLOSE button (⏏)

Press this button to open and close the CD player's disc holder.

Search button (▶▶)

Press this to move forward.

Search button (◀◀)

Press this to move backward.

DIRECT button

Press this for direct search on the CD player.

PROG button

Press this for programmed search on the CD player.

Number buttons

Press these after pressing the TUNER button to recall preset stations.
When playing a CD, press these after pressing the DIRECT or PROG button to specify track numbers.

Deck operation buttons

Use these buttons to operate the cassette deck. To record, press the REC/REC MUTE button then one of the PLAY buttons (◀ or ▶). Press the REC/REC MUTE button twice to create a 5-second blank space on the tape.
The recording pause mode is set when the REC PAUSE button is pressed during recording.

SDB (Super Dynamic Bass) button

Press this for a sound with more powerful bass. Press again to return to the normal sound.

Play button (▶)

Press this to start playback of the CD.

SLEEP button

Press this to set the sleep timer.

Pause button (II)

Press this to temporarily stop playback. Press the play button (▶) to resume playback.

Auto search button (I◀◀)

Press this button during playback to return to the beginning of the currently playing track. Press again within 0.5 seconds to move to the beginning of the previous track.

Auto search button (▶▶I)

Press this button during playback to advance to the beginning of the next track. Press again within 0.5 seconds to move to the beginning of the following track.

TIME button

Press this button repeatedly to switch the CD player time display between the remaining time per track, the total remaining time, and the elapsed time per track.

CANCEL button

Press once during programming to cancel the last programmed track.

FUNCTION button

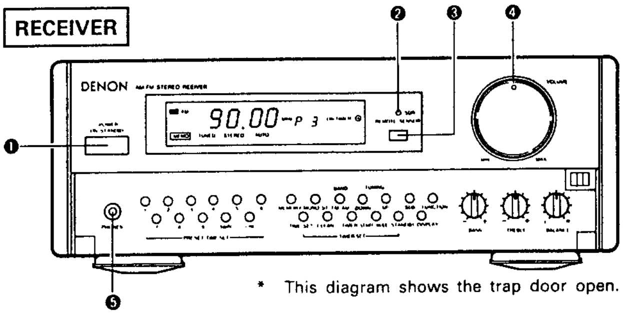
This switches the function between TUNER, TAPE, CD, PHONO and DAT/VCR.

VOLUME buttons

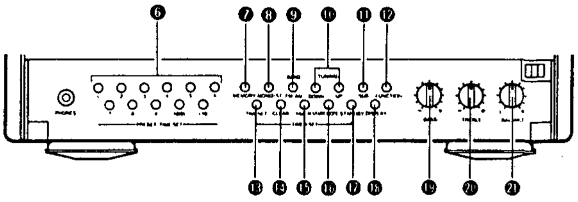
Use these to adjust the volume.
Press > to decrease the volume, < to increase it.

PART NAMES AND FUNCTIONS

RECEIVER



* This diagram shows the trap door open.



❶ **POWER switch**
Press this switch once to turn on the power and the display.
The displays on the CD player and cassette deck also light.
The CD player's play indicator does not light.
The cassette deck's direction of play indicator lights.

❷ **SDB (Super Dynamic Bass) indicator**
This lights when the SDB function is turned on with the SDB button.

❸ **REMOTE SENSOR**

❹ **VOLUME control**
Use this control to adjust the volume.
Turn clockwise (↷) to increase the volume, counterclockwise (↶) to decrease it.

❺ **PHONES jack**
When using headphones, plug them in here.
The sound from the speakers is cut when headphones are plugged in.

❻ **Number buttons for FM/AM presetting, time setting, etc.**
These are used to preset and recall AM and FM broadcasts, to set the time and timer, etc.

❼ **MEMORY button**
This button is used when presetting AM and FM stations.

❽ **MONO/ST. (FM stereo mute/mono) selector button**
(For FM reception)

STEREO mute: Use this mode to receive FM broadcasts in stereo. ("AUTO" appears on the display.)
The muting circuit is activated to cut noise between stations.

MONO: In this mode, FM broadcasts are received in monaural, regardless of whether they are broadcast in monaural or stereo.
Set to the mono mode if there is much noise in the stereo mute mode (with "AUTO" displayed) or if the signals are weak.

This button will not function when receiving MW and LW broadcasts.

❾ **BAND (FM/MW/LW) selector button**
The band switches between FM and MW, LW each time this button is pressed.

❿ **AUTO TUNING UP and DOWN buttons**
These are used to tune in MW, LW and FM stations, and for corrections when setting the time and timer.

⓫ **SDB (Super Dynamic Bass) button**
Press this button for more powerful bass sound.
Press again to turn the SDB function off.

⓬ **FUNCTION selectors**
Use these to select the program source.

⓭ **TIME SET button**
This is used when setting the timer and the current time, andwhen checking the timer settings, etc.

⓮ **CLEAR button**
This is used to change the current time and the timer settings.

⓯ **TIMER button**
This is used to set the timer.

⓰ **Timer START MODE button**
Use this button to select the function when setting the timer.

⓱ **Timer STANDBY button**
Press this button so that the timer will operate at the set times.

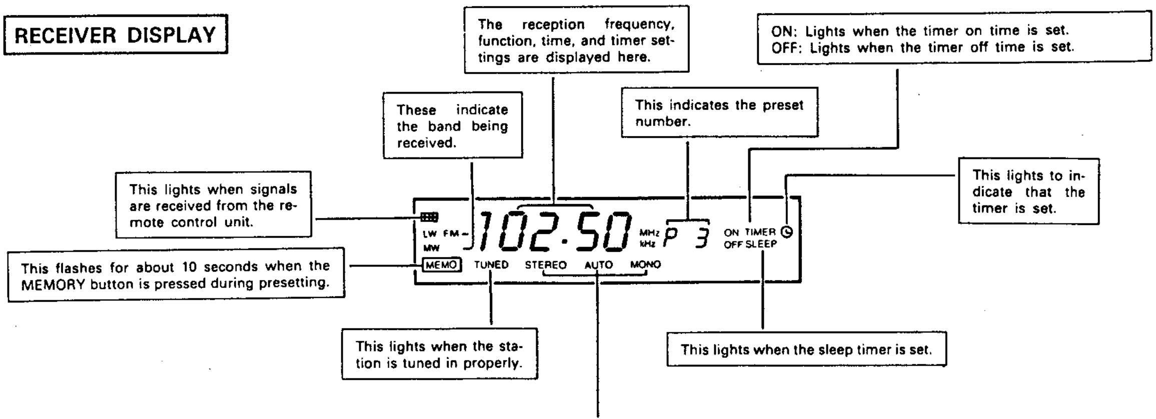
⓲ **DISPLAY TIME/FUNCTION button**
Press this button to switch the display between the function and the time.

⓳ **BASS control**
Use this to adjust the bass.

⓴ **TREBLE control**
Use this to adjust the treble.

㉑ **BALANCE control**
Use this to adjust the balance between the volume of the left and right channels. The volume is the same for the left and right channels when the control is at the center.

RECEIVER DISPLAY



The reception frequency, function, time, and timer settings are displayed here.

ON: Lights when the timer on time is set.
OFF: Lights when the timer off time is set.

These indicate the band being received.

This indicates the preset number.

This lights when signals are received from the remote control unit.

This lights to indicate that the timer is set.

This flashes for about 10 seconds when the MEMORY button is pressed during presetting.

This lights when the station is tuned in properly.

This lights when the sleep timer is set.

These indicate the FM reception mode.
STEREO: Lights when receiving stereo broadcasts.
AUTO: Lights when the auto mode is set with the FM mode button.
MONO: Lights when the monaural mode is set with the FM mode button.

NOTE:
- The timer standby mark " ◷ " will not light if the current time is not set.

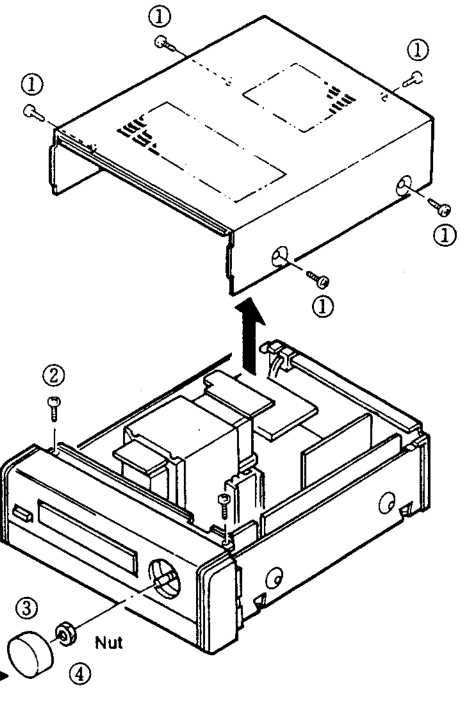
RECEIVER SECTION

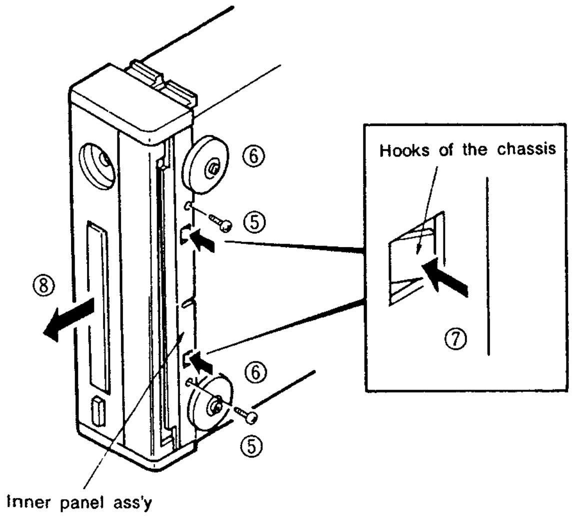
REMOVAL OF EACH SECTION

(Follow this procedure in the reverse order when assembling.)

1. Removal of the top cover and the front panel assembly

① Remove the 5 screws which fasten the top cover.
② Remove the 2 screws which fasten the front panel.
③ Remove the volume control assembly in the direction of the arrow.
④ Remove the nut which fastens the volume knob. At this time, remove with care the connector which connects the amp unit assembly and the front panel side assembly.


①
①
①
①
①
②
③
Nut
④

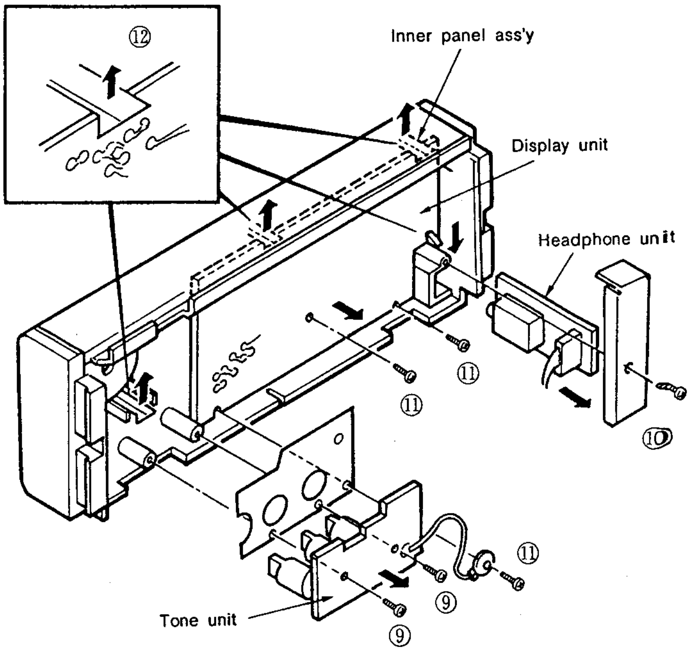

⑥
⑤
⑧
Hooks of the chassis
⑦
⑥
⑤
Inner panel ass'y

⑤ Stand the main unit as illustrated in the diagram and remove the 2 screws which fasten the inner panel assembly.
⑥ Slightly loosen the screws of the 2 front legs.
⑦ Remove the hooks of the chassis from the inner panel assembly.
⑧ Remove the front panel assembly in the direction of the arrow.

2. Removal of the printed wiring board assembly

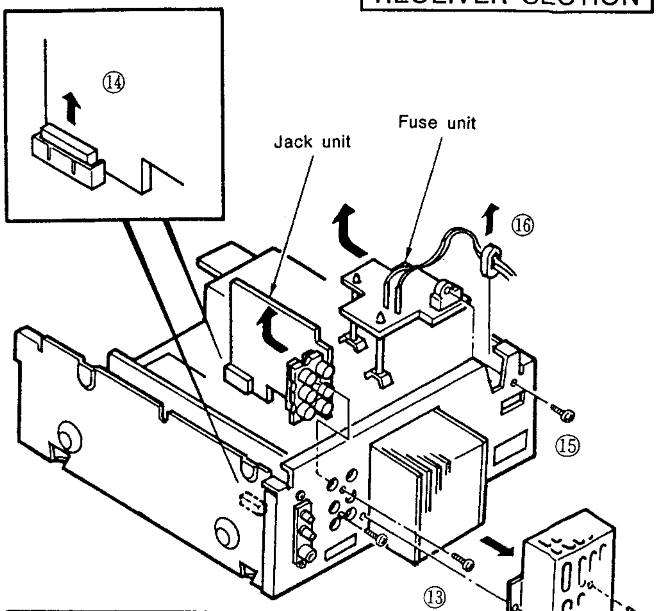
DISPLAY UNIT ASSEMBLY (1U-2277-2)

⑨ Remove the 2 screws which fasten the tone board.
⑩ Remove the screw which fastens the headphone board.
⑪ Remove the 3 screws which fasten the display unit assembly.
⑫ Remove the hooks of the inner panel assembly from the display unit assembly.


⑫
Inner panel ass'y
Display unit
Headphone unit
⑪
⑪
⑩
⑪
⑨
⑨
Tone unit

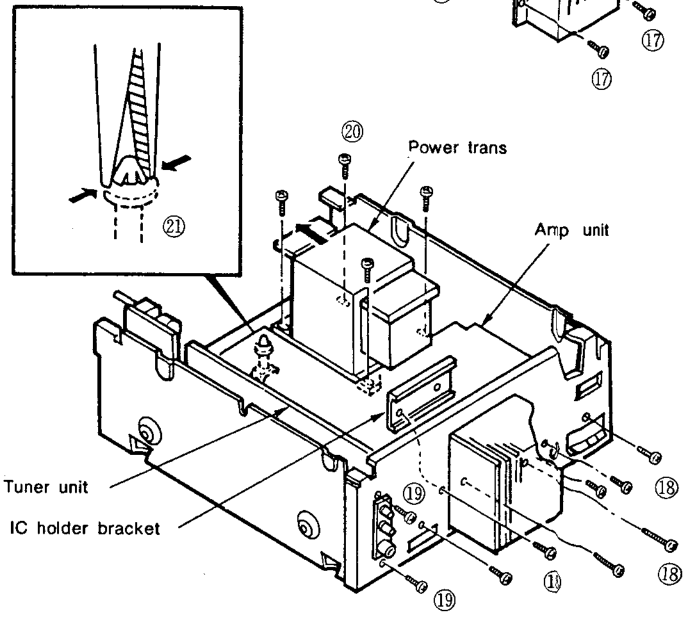
JACK UNIT ASSEMBLY (1U-2278-2) and FUSE UNIT ASSEMBLY (not on the parts list)

⑬ Remove the 2 screws which fasten the jack unit assembly.
⑭ Remove the connector which connects the jack unit assembly and the amp unit assembly. (Press the main unit assembly down slightly.)
⑮ Remove the screw which holds the fuse unit assembly.
⑯ Remove the cord bush from the rear panel and remove the fuse unit assembly in the direction of the arrow.
⑰ Remove the 2 screws which fasten the radiator cover.

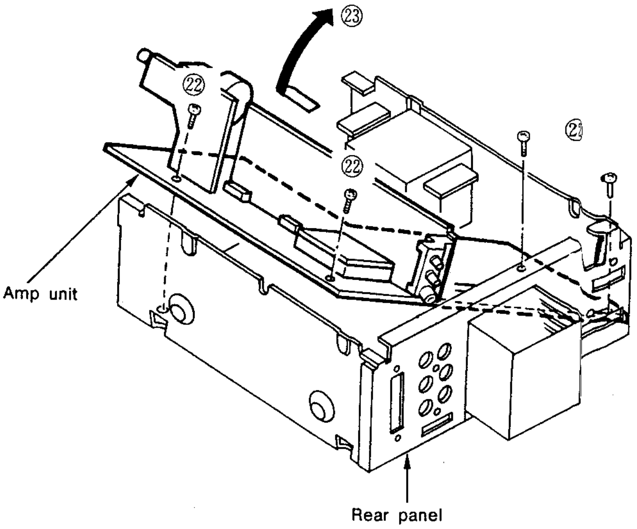


AMP UNIT ASSEMBLY (1U-2277-1)

⑱ Remove the 5 screws which fasten the amp unit assembly.
⑲ Remove the 2 screws which fastens the tuner unit assembly.
⑳ Remove the 4 screws which fasten the power transformer. Slide the power transformer in the direction of the arrow at this time.
㉑ Use radio pliers or another suitable tool to remove the PCB holder which fastens the amp unit assembly.

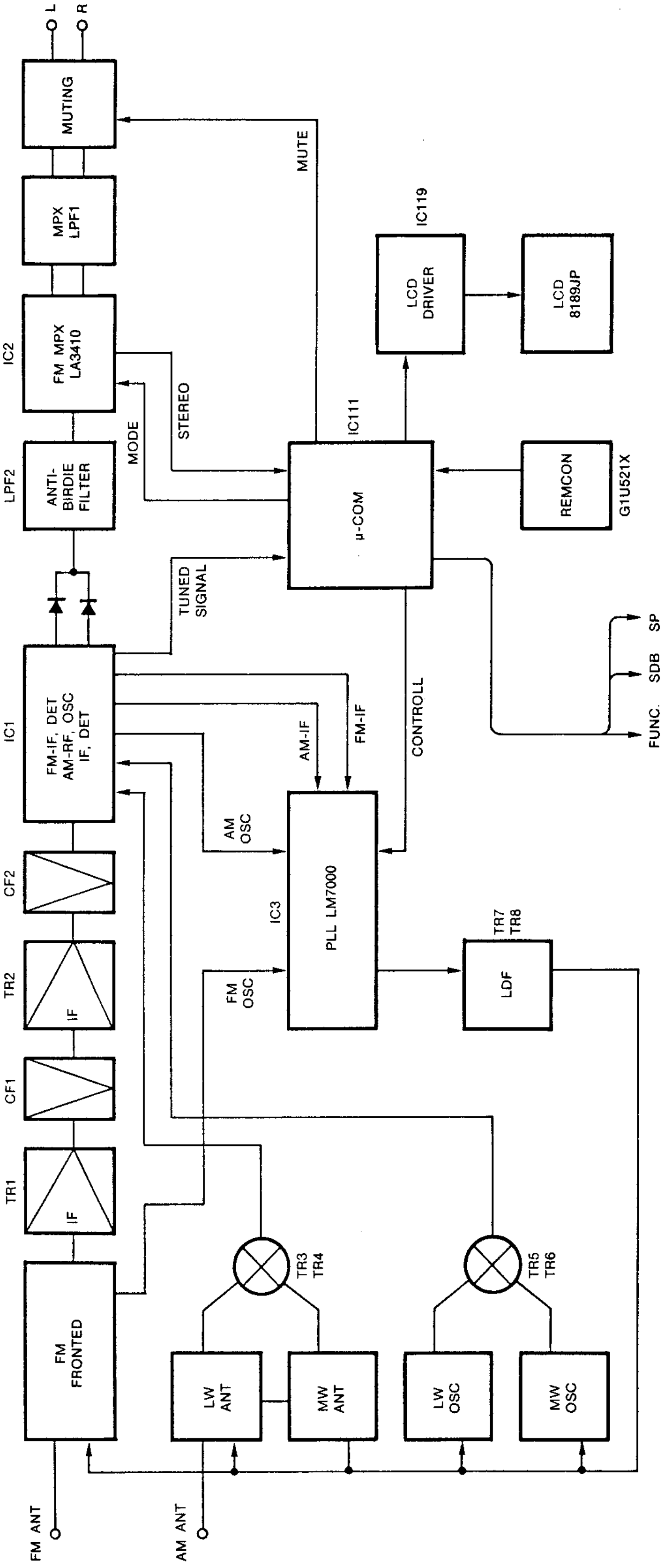


㉒ Remove the 4 screws which fasten the amp unit assembly.
㉓ Remove the amp unit assembly from the rear panel, then remove the amp unit assembly in the direction of the arrow.



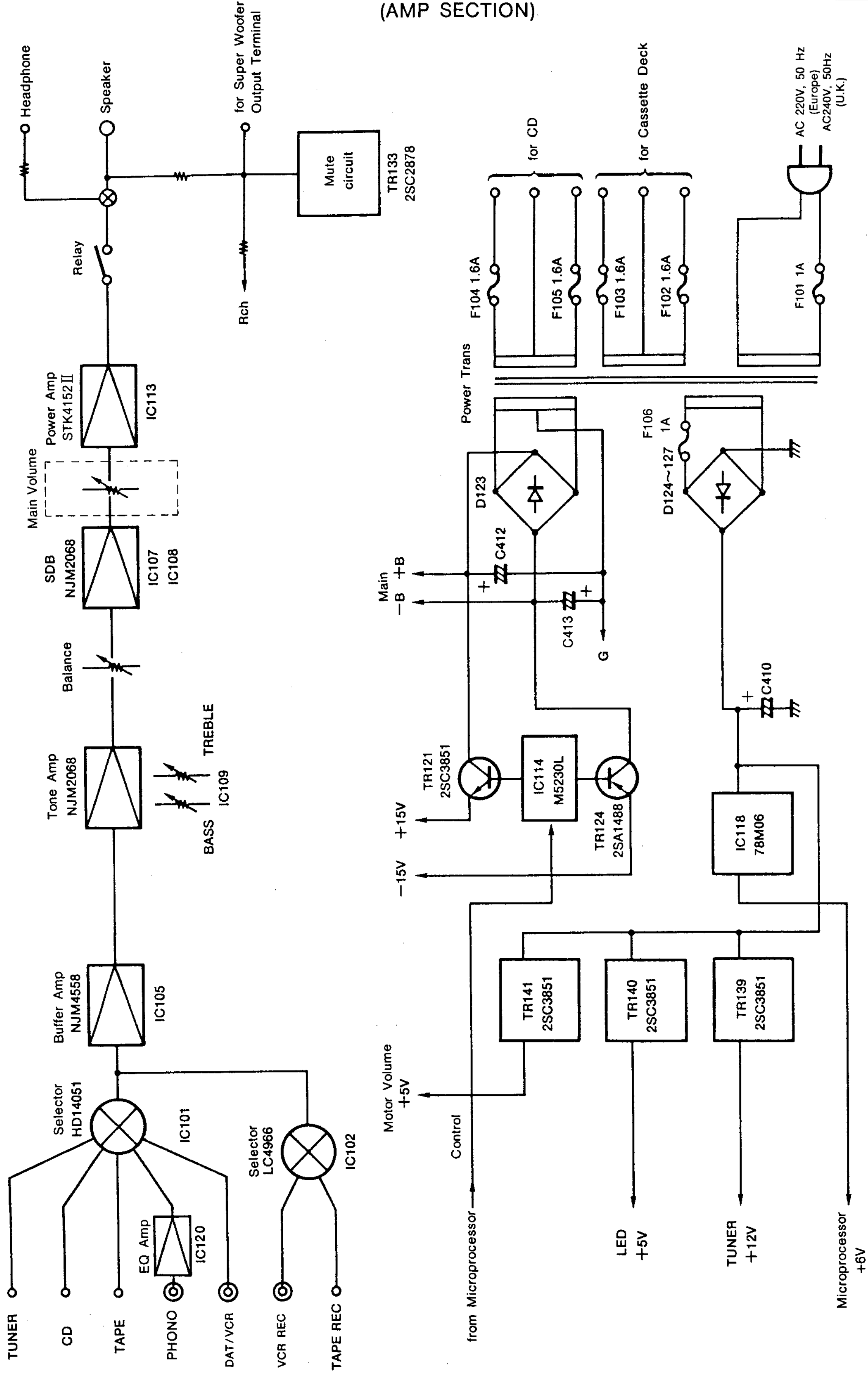
RECEIVER SECTION

BLOCK DIAGRAM
(TUNER SECTION)


L
R
MUTING
MPX
LPF1
IC2
FM MPX
LA3410
LPF2
ANTI-
BIRDIE
FILTER
MODE
STEREO
MUTE
IC119
LCD
DRIVER
LCD
8189JP
IC111
μ-COM
REMCON
G1U521X
TUNED
SIGNAL
IC1
FM-IF, DET
AM-RF, OSC
IF, DET
AM-IF
FM-IF
CONTROLL
SP
SDB
FUNC.
AM
OSC
IC3
PLL LM7000
FM
OSC
TR7
TR8
LDF
CF2
TR2
IF
CF1
TR1
IF
FM
FRONTED
TR3
TR4
TR5
TR6
LW
ANT
MW
ANT
LW
OSC
MW
OSC
FM ANT
AM ANT

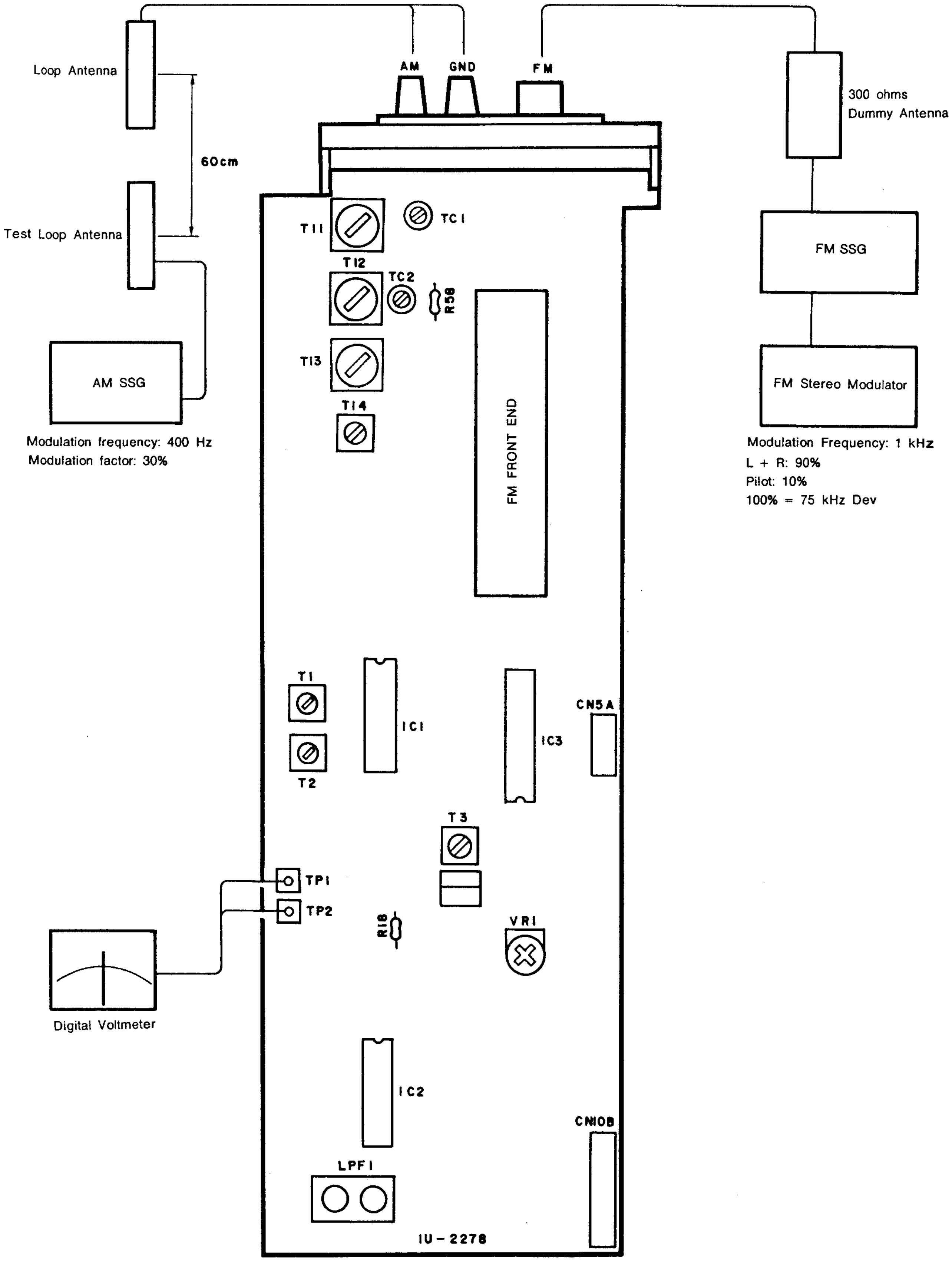
RECEIVER SECTION

(AMP SECTION)


Headphone
Speaker
for Super Woofer Output Terminal
Mute circuit
TR133 2SC2878
Relay
Rch
Power Amp STK4152II
IC113
Main Volume
SDB NJM2068
IC107 IC108
Balance
Tone Amp NJM2068
TREBLE
BASS
IC109
Buffer Amp NJM4558
IC105
Selector HD14051
IC101
Selector LC4966
IC102
EQ Amp
IC120
TUNER
CD
TAPE
PHONO
DAT/VCR
VCR REC
TAPE REC
for CD
for Cassette Deck
AC 220V, 50 Hz (Europe) AC240V, 50Hz (U.K.)
F104 1.6A
F105 1.6A
F103 1.6A
F102 1.6A
F101 1A
Power Trans
F106 1A
D123
D124~127
Main −B +B
C412
C413
G
C410
TR121 2SC3851
IC114 M5230L
TR124 2SA1488
+15V
−15V
IC118 78M06
TR141 2SC3851
TR140 2SC3851
TR139 2SC3851
Motor Volume +5V
Control
from Microprocessor
LED +5V
TUNER +12V
Microprocessor +6V

RECEIVER SECTION

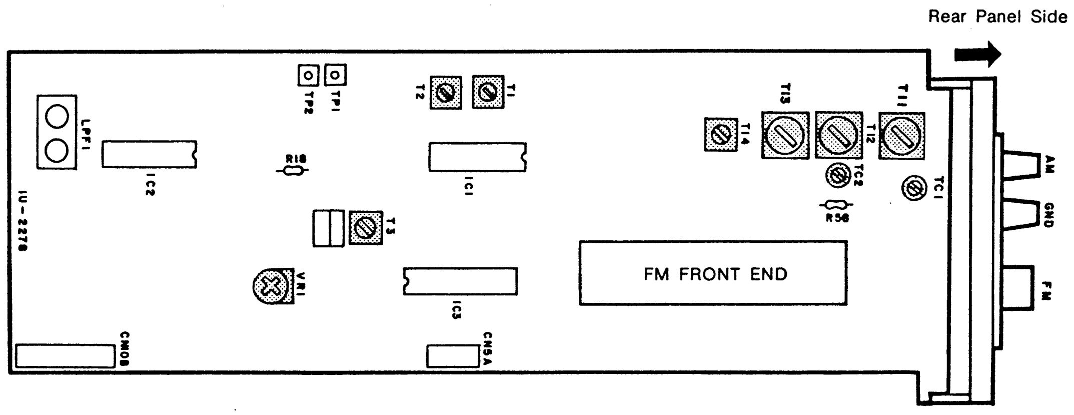
ADJUSTMENTS


Loop Antenna
60cm
Test Loop Antenna
AM SSG
AM
GND
FM
300 ohms
Dummy Antenna
FM SSG
FM Stereo Modulator
T11
TC1
T12
TC2
R58
T13
T14
FM FRONT END
T1
T2
IC1
IC3
CN5A
T3
TP1
TP2
R18
VR1
Digital Voltmeter
IC2
CN10B
LPF1
IU-2278

Modulation frequency: 400 Hz
Modulation factor: 30%

Modulation Frequency: 1 kHz
L + R: 90%
Pilot: 10%
100% = 75 kHz Dev

1U-2278 B or C TUNER UNIT ASS'Y (Component Side)


Rear Panel Side
LPF1
IC2
TP2
TP1
R18
T2
T1
IC1
T13
T14
T11
T12
TC2
TC1
R56
T3
VR1
IC3
FM FRONT END
CN08
CN5A
1U-2278
AM
GND
FM

1. FM adjustment (BAND SELECTOR button: FM, STEREO / MONO MUTE button: AUTO)

Step	Adjustment item	Tuning point (Channel setting)	Input					Output		Adjustment location	Setting value	Notes
			Measuring instrument	Frequency	Input level	Modulation	Connection location	Measuring instrument	Connection location			
1	FM DC balance	98.00MHz	FM S.G.	98.00MHz	60dBμ	1kHz 75kHz DEV	FM antenna terminal	Digital Volt meter	TP.1, TP.2	T-1	0 ± 50 mV	Perform with monaural modulation signal
2	Distortion	〃	〃	〃	〃	〃	〃	Distortion factor meter	Output jack	T-2	Minimum distortion	〃
3	Repeat Steps 1 and 2.											
4	AUTO STOP level	98.00MHz	FM S.G.	98.00MHz	22dBμ	1kHz 75kHz DEV	FM antenna terminal	Check for the lighting of TUNED	Output jack	VR-1	Input level 22dBμ ±4dB	(Level at which TUNED lights up) Level at which the output is provided

2. MW adjustment (BAND SELECT button: MW)

1	IF	Clear frequency (without a broadcast)	AM IF sweep	—	Level at which AGC is not applied	—	AM antenna terminal	Oscilloscope	⊕ TP.3 ⊖ TP.4	T-5	Waveform maximum and symmetry	
2	Band edge	522kHz	—	—	—	—	—	Digital voltmeter	⊕ TP.5 ⊖ TP.6	T-4	1.2V	
		1611kHz								—	Approx. 8.0V	No place to adjust
3	Tracking	603kHz	AM S.G.	603kHz	Level at which AGC is not applied	400Hz 30%	Loop antenna	VTVM	Output terminal	T-3	Maximum output	
4	Tracking	1404kHz	〃	1404kHz	〃	〃	〃	〃	〃	TC-1	Maximum output	
5	Repeat Steps 3 and 4, and set the output to maximum.											

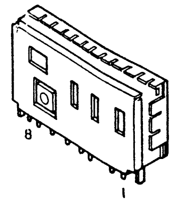
3. LW adjustment (BAND SELECT button: LW)

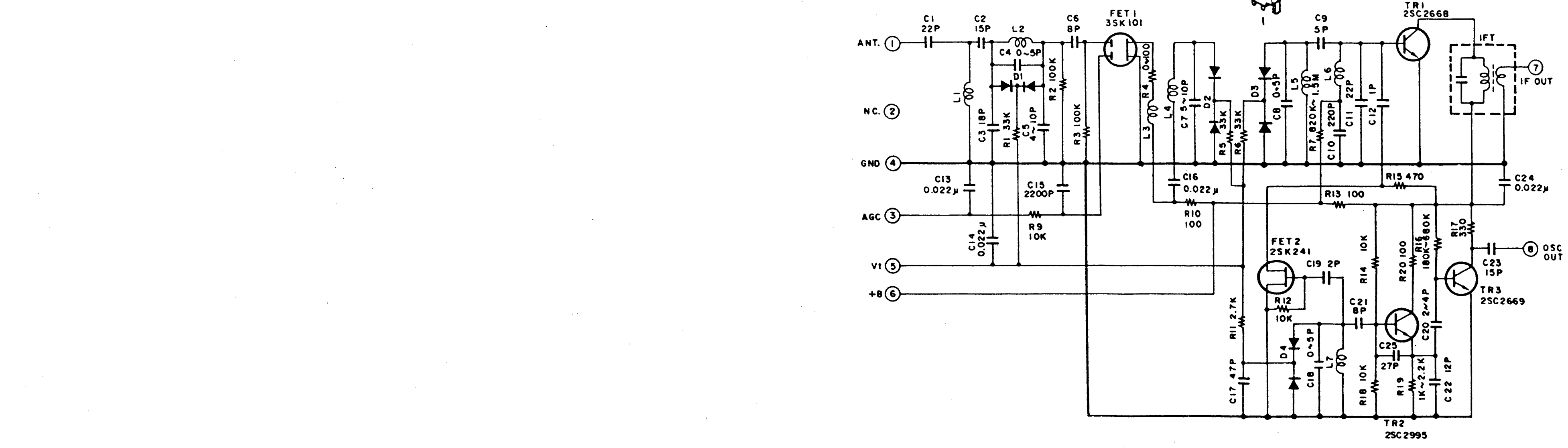
1	Band edge	153kHz	—	—	—	—	—	Digital voltmeter	⊕ TP.5 ⊖ TP.6	T-7	1.2V	
		279kHz								—	Approx. 7.0V	No place to adjust
2	Tracking	163kHz	AM S.G.	163kHz	Level at which AGC is not applied	400Hz 30%	Loop antenna	VTVM	Output terminal	T-6	Maximum output	
3	Tracking	270kHz	〃	270kHz	〃	〃	〃	〃	〃	TC-2	Maximum output	
4	Repeat Steps 2 and 3, and set the output to maximum.											

Front End
Part No.: 2160079005

No.	Name
1	ANT
2	ANT
3	AGC
4	GND

No.	Name
5	Vt
6	+B
7	IF OUT
8	OSC OUT

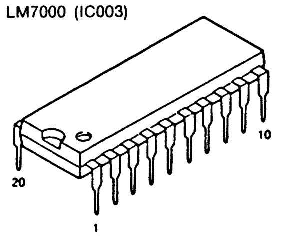


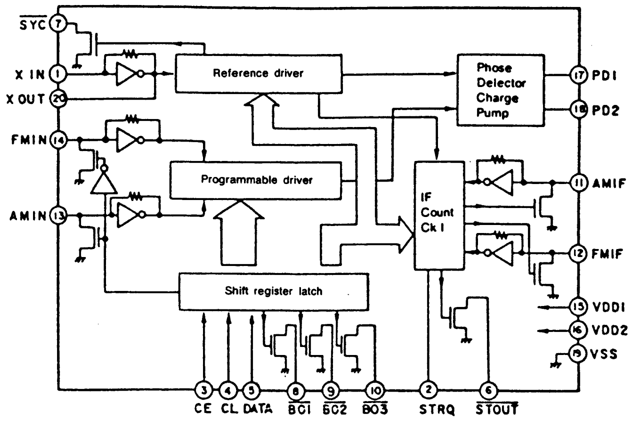

ANT. ①
NC. ②
GND ④
AGC ③
Vt ⑤
+B ⑥
C1 22P
C2 15P
L2
C4 0~5P
D1
L1
C3 18P
R1 33K
C5 4~10P
R2 100K
C6 8P
R3 100K
FET1 3SK101
R4 0~100
L3
L4
C7 5~10P
D2
R5 33K
R6 33K
D3
C8 0~5P
L5
R7 820K~1.5M
C9 5P
L6
C10 220P
C11 22P
C12 1P
TR1 2SC2668
IFT
⑦ IF OUT
C13 0.022μ
C14 0.022μ
C15 2200P
R9 10K
C16 0.022μ
R10 100
R13 100
R15 470
C24 0.022μ
FET2 2SK241
C19 2P
R12 10K
R11 2.7K
C17 47P
D4
C18 0~5P
L7
C21 8P
R14 10K
R18 10K
R20 100
R16 180K~680K
C20 2~4P
C25 27P
R19 1K~2.2K
C22 12P
R17 330
C23 15P
⑧ OSC OUT
TR3 2SC2669
TR2 2SC2995

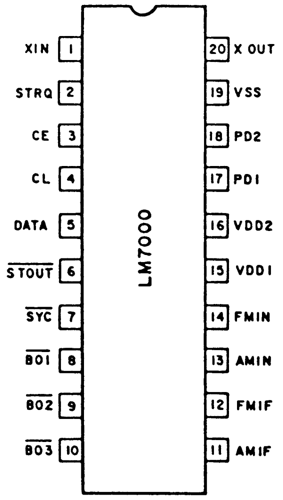
RECEIVER SECTION

● IC's

LM7000 (IC003)



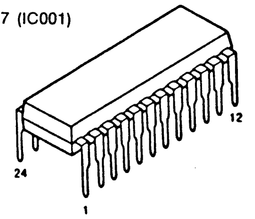

SYC 7
X IN 1
X OUT 20
FMIN 14
AMIN 13
Reference driver
Phase Delector Charge Pump
17 PD1
18 PD2
Programmable driver
IF Count Ck I
11 AMIF
12 FMIF
Shift register latch
15 VDD1
16 VDD2
19 VSS
3 CE
4 CL
5 DATA
8 BO1
9 BO2
10 BO3
2 STRQ
6 STOUT

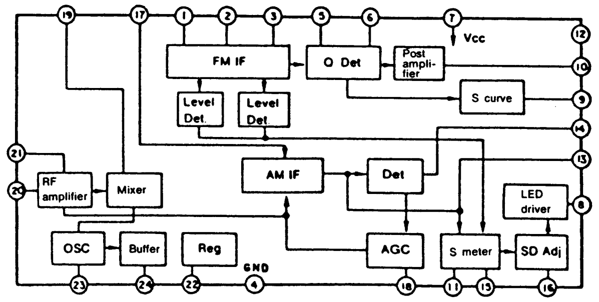

XIN 1
STRQ 2
CE 3
CL 4
DATA 5
STOUT 6
SYC 7
BO1 8
BO2 9
BO3 10
20 X OUT
19 VSS
18 PD2
17 PD1
16 VDD2
15 VDD1
14 FMIN
13 AMIN
12 FMIF
11 AMIF
LM7000

Pin Description

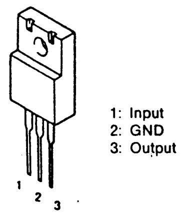
SYC	: Clock (400 kHz) for the controller
XIN, XOUT	: X'tal oscillator (7.2 MHz) with built-in feedback resistor
FM IN, AM IN	: Local oscillator signal input
CE, CL, DATA	: Data input
B01, B02, B03	: Band data output. B01 can be set as the time base output (8 Hz).
STRQ	: IF counter request input
STOUT	: Auto research stop signal output
VDD1, VDD2, VSS	: Power supply (VDD2 is a back-up power supply)
AMIF, FMIF	: IF signal input
PD1, PD2	: Charge pump output

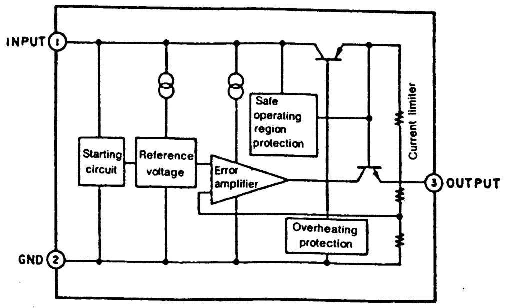
LA1267 (IC001)




19
17
1
2
3
5
6
7
Vcc
12
10
9
14
13
8
21
20
FM IF
O Det
Post amplifier
S curve
Level Det.
Level Det.
AM IF
Det
LED driver
RF amplifier
Mixer
OSC
Buffer
Reg
GND
AGC
S meter
SD Adj
23
24
22
4
18
11
15
16

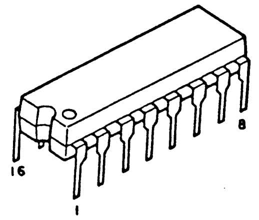
NJM78M06FA (IC118)

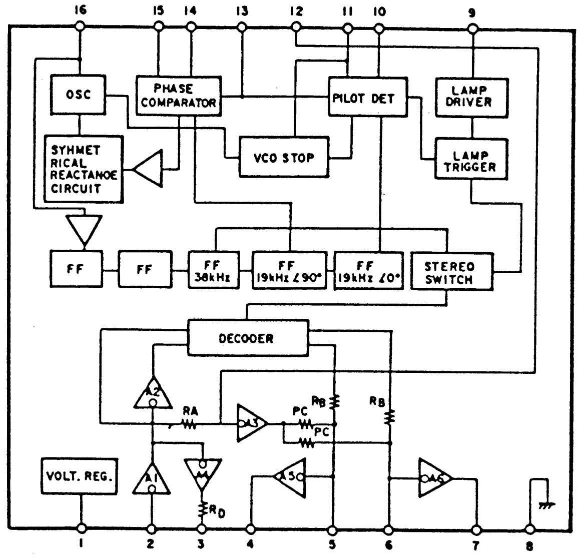

1: Input
2: GND
3: Output
1
2
3


INPUT 1
GND 2
3 OUTPUT
Starting circuit
Reference voltage
Error amplifier
Safe operating region protection
Current limiter
Overheating protection

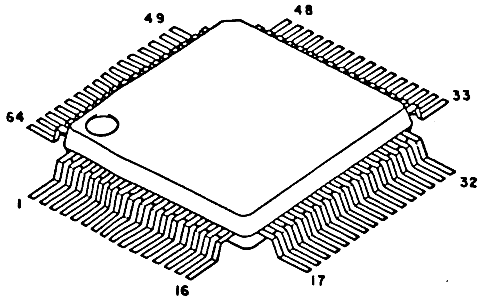
SEMICONDUCTORS

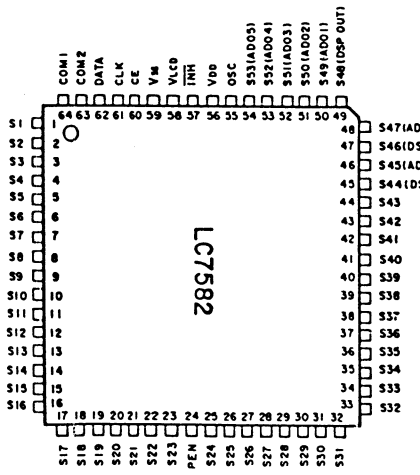
LA3410 (IC002)

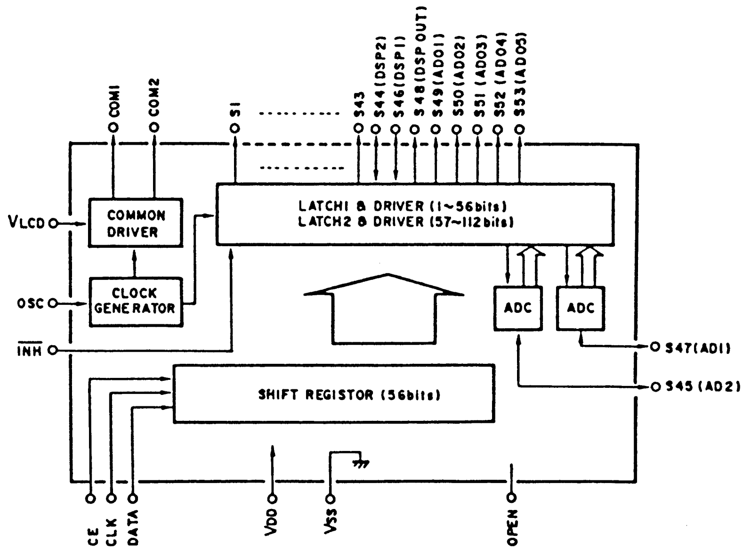



16
15
14
13
12
11
10
9
OSC
PHASE COMPARATOR
PILOT DET
LAMP DRIVER
SYHMET RICAL REACTANOE CIRCUIT
VCO STOP
LAMP TRIGGER
FF
FF
FF 38kHz
FF 19kHz ∠90°
FF 19kHz ∠0°
STEREO SWITCH
DECODER
A2
RA
A3
PC
PC
RB
RB
VOLT. REG.
A1
A4
RD
A5
A6
1
2
3
4
5
6
7
8

LC7582 (IC119)


49
48
33
64
32
1
16
17

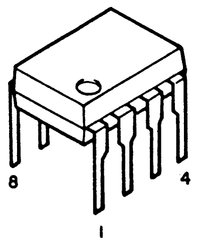

COM1
COM2
DATA
CLK
CE
VM
VLCD
INH
VDD
OSC
S53(AD05)
S52(AD04)
S51(AD03)
S50(AD02)
S49(AD01)
S48(DSP OUT)
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S47(AD1)
S46(DSP1)
S45(AD2)
S44(DSP2)
S43
S42
S41
S40
S39
S38
S37
S36
S35
S34
S33
S32
LC7582
S17
S18
S19
S20
S21
S22
S23
PEN
S24
S25
S26
S27
S28
S29
S30
S31

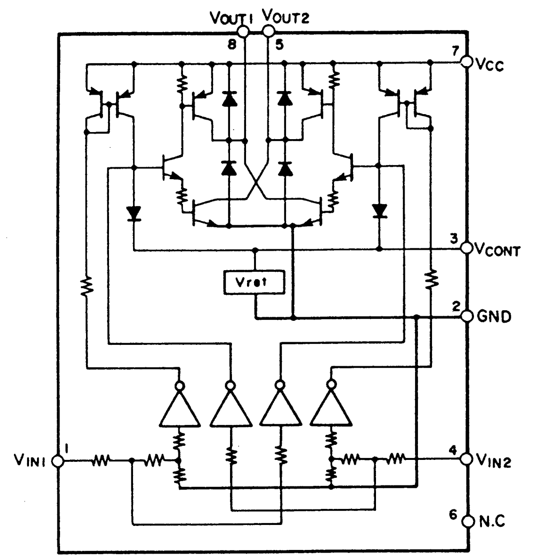

COM1
COM2
S1
S43
S44(DSP2)
S46(DSP1)
S48(DSP OUT)
S49(AD01)
S50(AD02)
S51(AD03)
S52(AD04)
S53(AD05)
VLCD
COMMON DRIVER
LATCH1 & DRIVER (1~56bits)
LATCH2 & DRIVER (57~112bits)
OSC
CLOCK GENERATOR
ADC
ADC
INH
S47(AD1)
S45(AD2)
SHIFT REGISTOR (56bits)
CE
CLK
DATA
VDD
VSS
OPEN

Pin Description

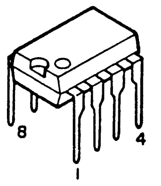
· S1 through S43	: Segment output pins
· S46 (DSP1), S44 (DSP2)	: Segment output or DSP input pins
· S47 (AD1), S45 (AD2)	: Segment output or AD input pins
· S48 (DSPOUT)	: Segment output of DSP output pin
· S49 through S53 (AD01 through 5)	: Segment output or AD output pins
· COM1, 2	: Common output pins (Only COM1 is used at time of 1/1 duty, and COM2 is set open)
· V_{LCD}	: LCD bias voltage setting pin
· OSC	: Oscillation pin
· CE, CLK, DATA	: Input pin for serial data transfer
· V_{SS}, V_{DD}	: Supply pins
· INH	: Display-off input pin. (Valid only with the output driver. This means that the transfer of serial data is possible while the display is off.)
· OPEN	: No connection is made.

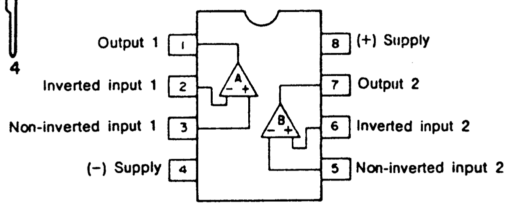
LB1639 (IC110)

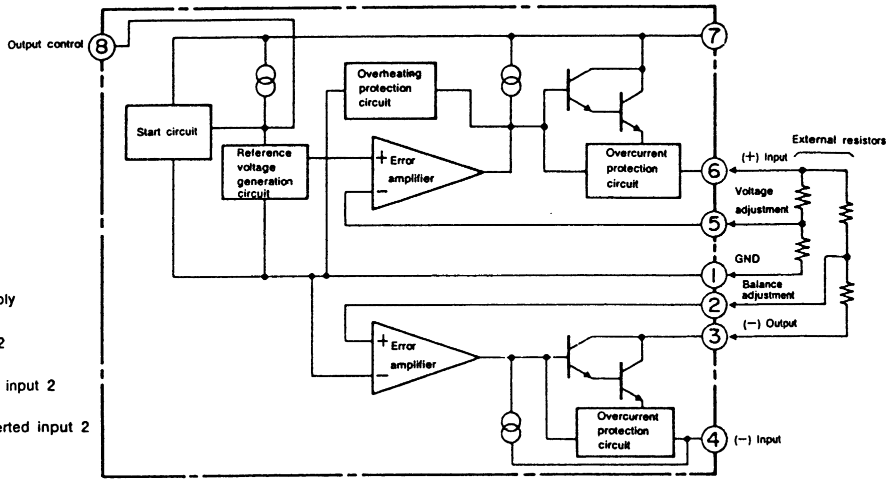



VOUT1
VOUT2
8
5
7
VCC
3
VCONT
Vref
2
GND
VIN1
1
4
VIN2
6
N.C

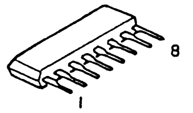
NJM2068DDC (IC107~109, 120)
NJM4558DD (IC105)

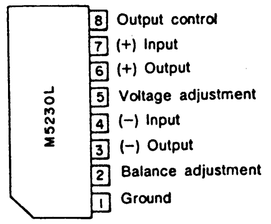



Output 1
1
Inverted input 1
2
Non-inverted input 1
3
(−) Supply
4
8
(+) Supply
7
Output 2
6
Inverted input 2
5
Non-inverted input 2
A
B

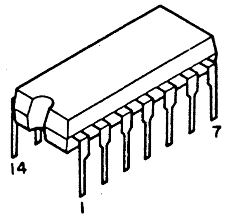

Output control
8
7
Start circuit
Overheating protection circuit
Reference voltage generation circuit
Error amplifier
Overcurrent protection circuit
External resistors
(+) Input
6
Voltage adjustment
5
GND
1
Balance adjustment
2
(−) Output
3
Error amplifier
Overcurrent protection circuit
4
(−) Input

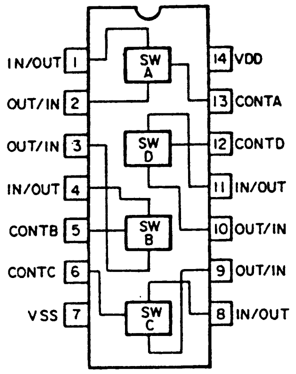
M5230L (IC114)



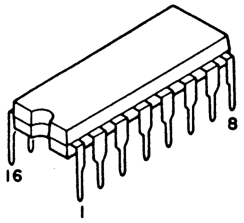

M5230L
8 Output control
7 (+) Input
6 (+) Output
5 Voltage adjustment
4 (−) Input
3 (−) Output
2 Balance adjustment
1 Ground

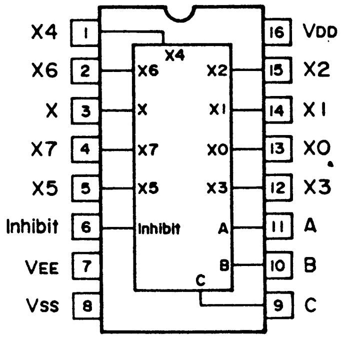
LC4966 (IC102)

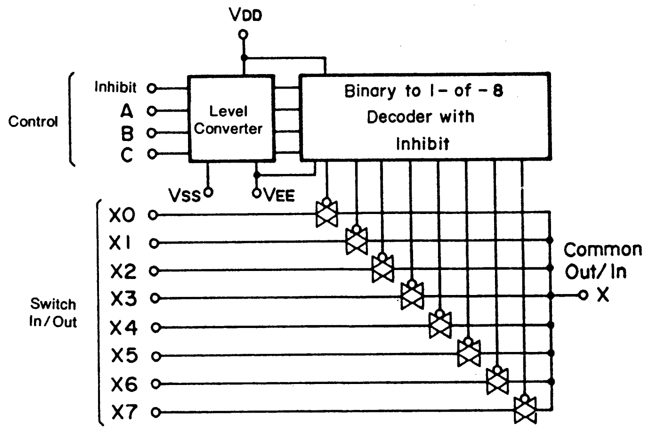



IN/OUT 1
OUT/IN 2
OUT/IN 3
IN/OUT 4
CONTB 5
CONTC 6
VSS 7
14 VDD
13 CONTA
12 CONTD
11 IN/OUT
10 OUT/IN
9 OUT/IN
8 IN/OUT
SW A
SW D
SW B
SW C

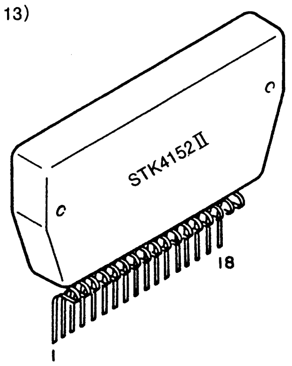
HD14051BP (IC101、103)

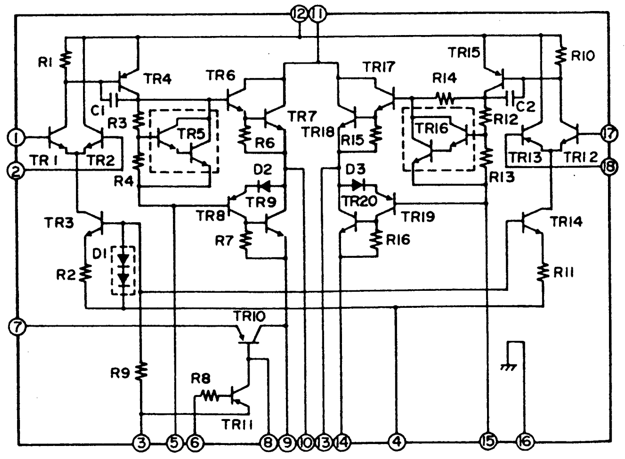



X4 1
X6 2
X 3
X7 4
X5 5
Inhibit 6
VEE 7
Vss 8
16 VDD
15 X2
14 X1
13 X0
12 X3
11 A
10 B
9 C


VDD
Control
Inhibit
A
B
C
Level Converter
Binary to 1-of-8 Decoder with Inhibit
VSS
VEE
Switch In/Out
X0
X1
X2
X3
X4
X5
X6
X7
Common Out/In
X

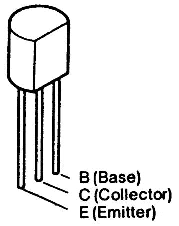
STK4152Ⅱ (IC113)


STK4152Ⅱ
18
1

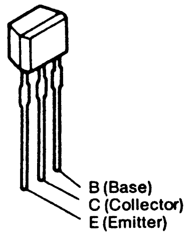

12 11
R1
TR4
TR6
TR17
TR15
R10
C1
R3
TR5
R6
TR7
TR18
R14
C2
TR16
R12
R15
1
TR1
TR2
R4
D2
D3
TR13
TR12
2
17
18
R13
TR3
TR8
TR9
TR20
TR19
TR14
R7
R16
D1
R2
R11
7
TR10
R9
R8
TR11
3 5 6
8 9 10 13 14
4
15 16

● Transistors

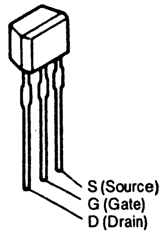
2SC461 (C)
2SC2878 (A/B)


B (Base)
C (Collector)
E (Emitter)

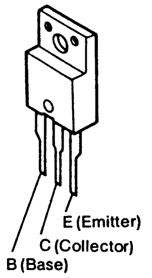
2SC2458 (BL)
2SA1048 (GR)


B (Base)
C (Collector)
E (Emitter)

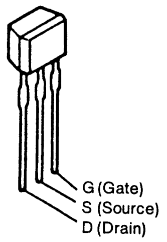
(FET)
2SK365 (BL/RG)


S (Source)
G (Gate)
D (Drain)

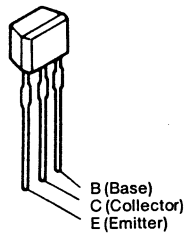
2SA1488(Y/GR)
2SC3851(Y/GR)


E (Emitter)
C (Collector)
B (Base)

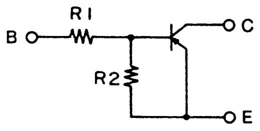
(FET)
2SK161 (GR)


G (Gate)
S (Source)
D (Drain)

DTA114ES
DTA124ES } PNP Type
DTA144ES
DTC114ES
DTC144ES } NPN Type

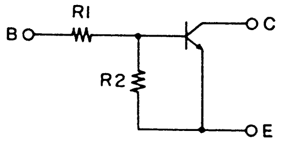

B (Base)
C (Collector)
E (Emitter)

PNP Type



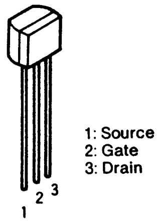
	R1	R2
DTA114ES	10k ohm	10k ohm
DTA124ES	22k ohm	22k ohm
DTA144ES	47k ohm	47k ohm

NPN Type



	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm

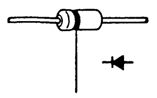
(FET)
2SJ40 (D) / (E)


1: Source
2: Gate
3: Drain
1
2
3

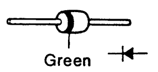
RECEIVER SECTION

● Diodes (including LED)

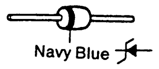
1SS270A



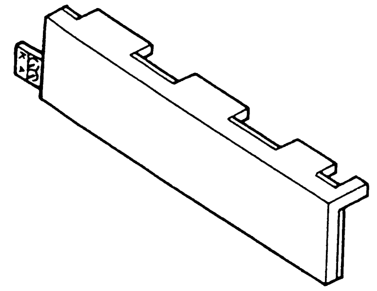
1SR139-200



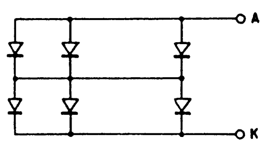
HZS3C-2
HZS3A-3
HZS4A-2
HZS6B-2
HZS7B-3
HZS12B-1



LED Ass'y
Part No.: 3939493002

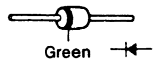


• Connection

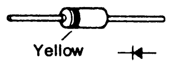


2 in series, 22 parallel = 44 chips

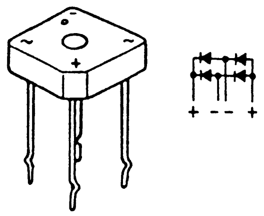
1SS198



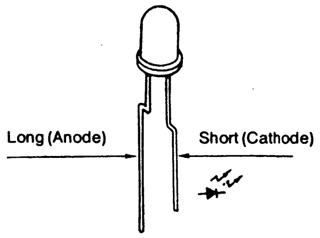
1SS254



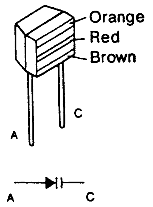
S4VB20F



SLR-34MC70F150G (Green)

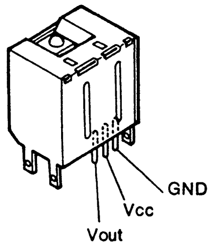

Long (Anode)
Short (Cathode)

SVC321SPA-D-2
(Varactor)

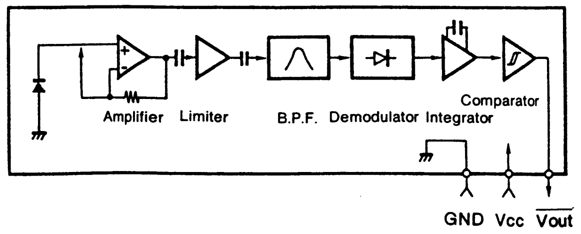

Orange
Red
Brown
A
C
A
C

● Infrared Remote Control Sensor

GP10521X
(IC112)

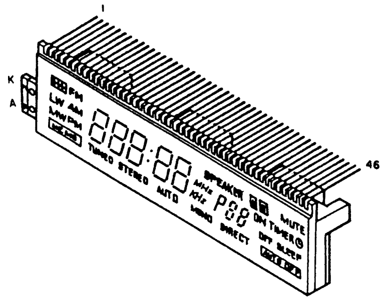

GND
Vcc
Vout

Structural Diagram

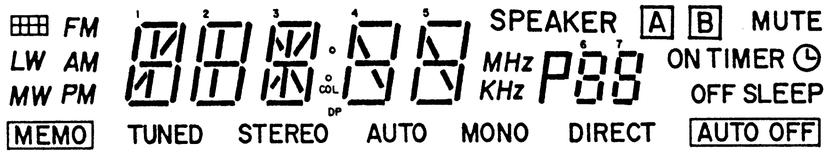

Amplifier
Limiter
B.P.F.
Demodulator
Integrator
Comparator
GND
Vcc
Vout

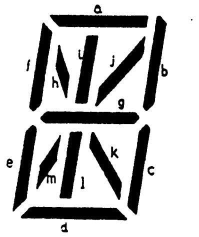
● LCD Ass'y

Part No.3934122006
(8189JP)



Segment division


FM
LW AM
MW PM
1
2
3
4
5
6
7
COL
DP
SPEAKER
A
B
MUTE
MHz
KHz
P
ON TIMER
OFF SLEEP
MEMO
TUNED
STEREO
AUTO
MONO
DIRECT
AUTO OFF


a
f
h
i
j
b
g
e
m
l
k
c
d

● LCD Pin Configuration

Pin configuration definitions (segment side)

A/B	COM1	COM2
S 1	A11	A 4
S 2	A10	A 3
S 3	A 9	A 2
S 4	A 8	A 1
S 5	A 7	A 6
S 6	A 5	B 3
S 7	B 8	B 2
S 8	B 7	B 1
S 9	B 5	B 6
S10	B 9	B 4
S11	C12	C 4
S12	C11	C 3
S13	C 9	C 2
S14	C 8	C 1
S15	C 7	C 6
S16	C13	C10
S17	D 2	C 5
S18	I (STEREO)	D 1
S19	E 4	E 3
S20	E 7	E 2
S21	E 6	E 1
S22	E 9	E 8
S23	E 5	F 3
S24	F 7	F 2
S25	F 6	F 1
S26	F 4	F 8
S27	F 9	F 5
S28	G (MEMO)	H (TUNED)
S29	F (PM)	J (AUTO)
S30	D (AM)	E (MW)

A/B	COM1	COM2
S31	C (LW)	K (MONO)
S32	M (KHz)	N (MHz)
S33	A (□□)	L (DIRECT)
S34	G 4	G 3
S35	T (P)	O (SPEAKER)
S36	G 2	G 1
S37	G 7	G 6
S38	G 5	H 3
S39	Q (B)	P (A)
S40	H 7	H 2
S41	H 6	H 1
S42	S (OFF)	R (ON)
S43	H 4	H 5
S44	V (TIMER)	U (MUTE)
S45	W (□)	X (SLEEP)
S46	B (FM)	Y (AUTO OFF)
S47	—	—
S48	—	—
S49	—	—
S50	—	—
S51	—	—
S52	—	—
S53	—	—

B. Common side

COM1
COM2

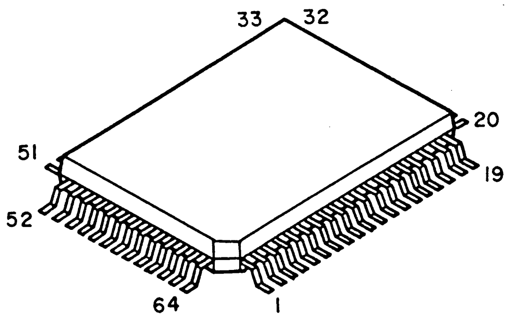
Pin Connection

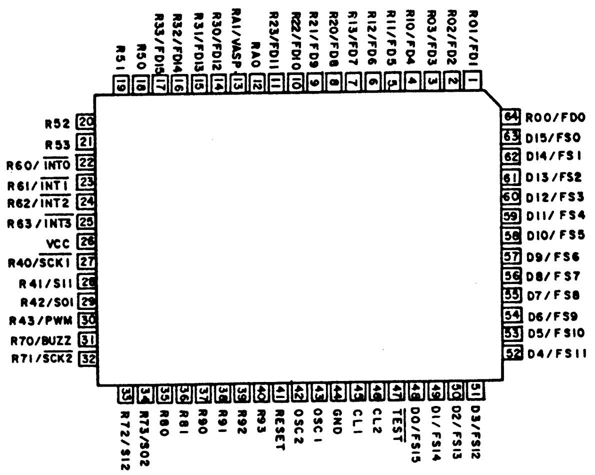
NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COM1	—	COM	1l	1m	1g	1i	1j	1c	2g	2i	2c	2l	3l	3m	3h	3i	3j	3k	DP	STEREO	4d	4h	4b	4k
COM2	COM	—	1d	1e	1f	1a	1b	2e	2f	2a	2b	2d	3d	3e	3f	3a	3b	3g	3c	COL	4e	4f	4a	4g

NO	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
COM1	4c	5h	5b	5d	5k	MEMO	PM	AM	LW	KHZ		6d	P	6f	6g	6c	B	7g	7b	OFF	7d	TIMER		FM
COM2	5e	5f	5a	5g	5c	TUNED	AUTO	MW	MONO	MHZ	DIRECT	6e	SPEAKER	6a	6b	7e	A	7f	7a	ON	7c	MUTE	SLEEP	AUTO OFF

MICROPROCESSOR DOCUMENTATION

HD404729B20FS: 2621484003


33
32
20
19
51
52
64
1


R01/FD1 1
R02/FD2 2
R03/FD3 3
R10/FD4 4
R11/FD5 5
R12/FD6 6
R13/FD7 7
R20/FD8 8
R21/FD9 9
R22/FD10 10
R23/FD11 11
RA0 12
RA1/VASP 13
R30/FD12 14
R31/FD13 15
R32/FD14 16
R33/FD15 17
R50 18
R51 19
R52 20
R53 21
R60/INT0 22
R61/INT1 23
R62/INT2 24
R63/INT3 25
VCC 26
R40/SCK1 27
R41/SI1 28
R42/SO1 29
R43/PWM 30
R70/BUZZ 31
R71/SCK2 32
R72/SI2 33
R73/SO2 34
R80 35
R81 36
R90 37
R91 38
R92 39
R93 40
RESET 41
OSC2 42
OSC1 43
GND 44
CL1 45
CL2 46
TEST 47
D0/FS15 48
D1/FS14 49
D2/FS13 50
D3/FS12 51
D4/FS11 52
D5/FS10 53
D6/FS9 54
D7/FS8 55
D8/FS7 56
D9/FS6 57
D10/FS5 58
D11/FS4 59
D12/FS3 60
D13/FS2 61
D14/FS1 62
D15/FS0 63
R00/FD0 64

1. Overview

The functions of this microcomputer are made up of the following three pillars.

a. **Tuner functions**

These functions perform the required control for the reception of FM and AM broadcasts.

b. **Auto Functions**

Positioned at the heart of the system stereo, the auto functions perform serial communications with other components (such as the deck, CD, and amplifier) to provide overall control.

These functions decode the signals from the remote control and send them to each component of the system.

c. **Timer functions**

Counts the clock.

Operates the two kinds of timers: Every Day, and Sleep.

Note 1: When buttons $\boxed{1}$ and $\boxed{7}$ of the wiring diagram are pressed simultaneously and the power cord is inserted into the power outlet, the frequencies used for the tracking adjustment will automatically be registered in the preset memory as indicated below.
Use this information for tuning and other procedures.

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
FM (MHz)	87.50	89.00	98.00	100.10	108.00	87.50	87.50	87.50	87.50	87.50
	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20
MW (kHz)	522	603	846	999	1,098	1,404	1,512	1,611	522	522
	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
LW (kHz)	153	173	254	279	163	216	270	153	153	153

2. Receiving Band Table

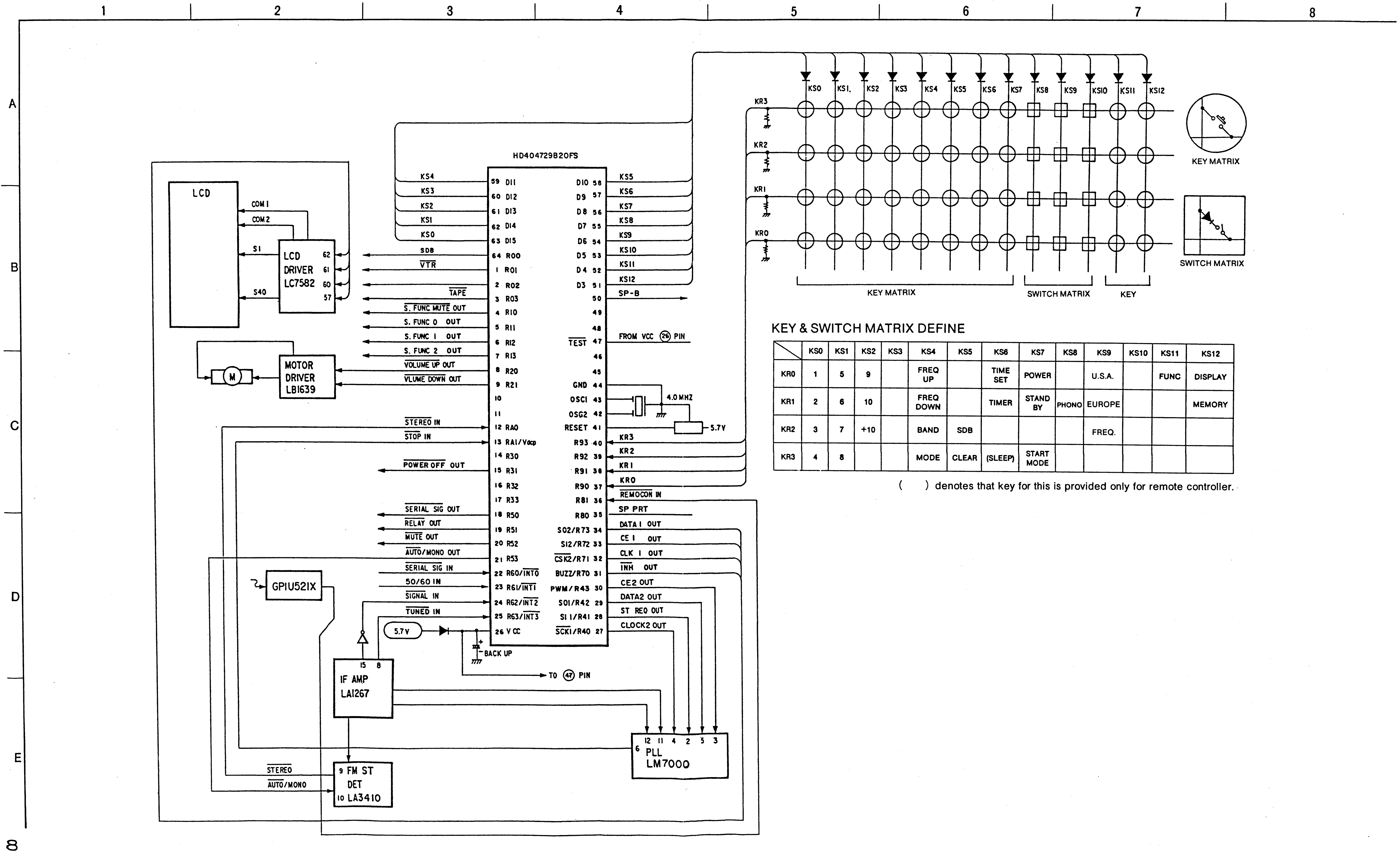
Band	Receiving frequency	Local oscillator frequency	IF frequency	Frequency division ratio	Comparison frequency	Step frequency	Other
FM	87.50～108.00 MHz	98.2～118.9 MHz	10.7 MHz	1/2	25 kHz	50 kHz	STEREO
MW	522～1611 kHz	972～2061 kHz	450 kHz	—	9 kHz	9 kHz	
LW	153～279 kHz	603～729 kHz	450 kHz	—	1 kHz	1 kHz	

3. Description of Key and Selection Switch Inputs

No.	Function name	Function
1	P1－P10	Input keys for preset station calling and preset storage. P1 through P10 provide a numerical key pad function when making a time setting. The P10 key operates as a zero.
2	P+10	Specifies 10 stations to be added to the stored stations when making preset station calls and preset storage.
4	BAND	Operates in a cyclic manner to specify switching to the FM or MW or LW receiving modes.
7	FREQ、UP	∗In the tuner mode Changes the receiving frequency upward one step at a time. When held for 0.5 seconds or longer, the change is continuous. The unit enters the auto tuning mode the moment the key is released. Pressing the key again engages the step operation. ∗In the clock mode Becomes the lower digits shift key of the display. (→)
8	FREQ, DOWN	∗In the tuner mode Changes the receiving frequency downward one step at a time. When held for 0.5 seconds or longer, the change is continuous. The unit enters the auto tuning mode the moment the key is released. Pressing the key again engages the step operation. ∗In the clock mode Becomes the upper digits shift key of the display. (←)
10	MODE	At the time of FM reception, specifies the switching of the receiving mode between the stereo / mono auto mode and the forced mono mode.
14	CLEAR	Orders the clearing of the timer setting contents.
15	CLOCK ADJ	Orders a switch to the time setting mode. Operates as the ENT key for the time setting in the time setting mode. At this time the P1 through P10 keys operate as a numerical key pad, but the P+10 key is not accepted. ∗To escape from this mode part way through a time setting, press the CLEAR key.
16	ONCE	Provides a transition to the setting mode which operates the timer only once each day at the set time.
17	SLEEP	Provides a transition to the mode which switches the power off after a set time within 60 minutes. (On remote control)
18	POWER	Provides a toggle operation of RELAY OUT (H and L) which switches the power of other components of the system on and off.
19	STAND BY	Pressing this key selects whether or not the timer operation is performed. To engage the timer operation, use this key to light the stand by mark on the LCD.
21	TIMER START	Press this key to select the component of the system from which the start operation is to begin when the once timer is switched on. ∗The function selected by this key is stored. When the power is switched on at the timer setting time, the start code of the component is output.
22	FUNC	TUNER → TEPE → CD → PHONO → DAT
26	DISPLY	Switches between the clock display and the frequency display.
27	MEMORY	∗In the tuner mode Provides a transition to the mode which registers the stations being received to preset memory. The "MEMORY" display will flash. Registration is accomplished by pressing the P1 through P10 keys and the P+10 key.

RECEIVER SECTION

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
HD404729B20FS
LCD
COM 1
COM 2
S1
S40
LCD DRIVER LC7582
62
61
60
57
MOTOR DRIVER LB1639
M
KS4
KS3
KS2
KS1
KS0
SDB
VTR
TAPE
S. FUNC MUTE OUT
S. FUNC 0 OUT
S. FUNC 1 OUT
S. FUNC 2 OUT
VOLUME UP OUT
VLUME DOWN OUT
STEREO IN
STOP IN
POWER OFF OUT
SERIAL SIG OUT
RELAY OUT
MUTE OUT
AUTO/MONO OUT
SERIAL SIG IN
50/60 IN
SIGNAL IN
TUNED IN
59 D11
60 D12
61 D13
62 D14
63 D15
64 R00
1 R01
2 R02
3 R03
4 R10
5 R11
6 R12
7 R13
8 R20
9 R21
10
11
12 RA0
13 RA1/Vdisp
14 R30
15 R31
16 R32
17 R33
18 R50
19 R51
20 R52
21 R53
22 R60/INT0
23 R61/INT1
24 R62/INT2
25 R63/INT3
26 VCC
D10 58
D9 57
D8 56
D7 55
D6 54
D5 53
D4 52
D3 51
50
49
48
TEST 47
46
45
GND 44
OSC1 43
OSC2 42
RESET 41
R93 40
R92 39
R91 38
R90 37
R81 36
R80 35
SO2/R73 34
SI2/R72 33
CSK2/R71 32
BUZZ/R70 31
PWM/R43 30
SO1/R42 29
SI1/R41 28
SCK1/R40 27
KS5
KS6
KS7
KS8
KS9
KS10
KS11
KS12
SP-B
FROM VCC ㉖ PIN
4.0 MHZ
5.7V
KR3
KR2
KR1
KR0
REMOCON IN
SP PRT
DATA 1 OUT
CE 1 OUT
CLK 1 OUT
INH OUT
CE2 OUT
DATA2 OUT
ST REO OUT
CLOCK2 OUT
GP1U521X
5.7V
BACK UP
TO ㊼ PIN
15 8
IF AMP LA1267
12 11 4 2 5 3
6 PLL LM7000
STEREO
AUTO/MONO
9 FM ST DET
10 LA3410
KS0
KS1
KS2
KS3
KS4
KS5
KS6
KS7
KS8
KS9
KS10
KS11
KS12
KR3
KR2
KR1
KR0
KEY MATRIX
SWITCH MATRIX
KEY
KEY MATRIX
SWITCH MATRIX

KEY & SWITCH MATRIX DEFINE

	KS0	KS1	KS2	KS3	KS4	KS5	KS6	KS7	KS8	KS9	KS10	KS11	KS12
KR0	1	5	9		FREQ UP		TIME SET	POWER		U.S.A.		FUNC	DISPLAY
KR1	2	6	10		FREQ DOWN		TIMER	STAND BY	PHONO	EUROPE			MEMORY
KR2	3	7	+10		BAND	SDB				FREQ.			
KR3	4	8			MODE	CLEAR	(SLEEP)	START MODE					

(　　) denotes that key for this is provided only for remote controller.

4. IC HD404729B20FS Pin Description (See the Peripheral Wiring Diagram of Page 20.)

PIN NO.	Port Name	Function Name	Function
1	R02	VTR	Control signal output pin when the function has been set to DAT.
3	R03	TAPE	Control siganl output pin when the function has been set to DAT.
4	R10	S.FUNC MUTE OUT	Outputs the muting output when there is a change of the S. FUNCO-2 OUT pin output.
5	R11	S.FUNC 0 OUT	Output pin for selecting the function.
6	R12	S.FUNC 1 OUT	Output pin for selecting the function.
7	R13	S.FUNC 2 OUT	Output pin for selecting the function.
8	R20	VOLUME UP OUT	Output pin used for the motor drive volume control. Up = low level
9	R21	VOLUME DOWN OUT	Output pin used for the motor drive volume control. Down = low level
12	RA0	STEREO IN	Input signal for taking in the stereo display signal from the FM MPX IC and displaying it on the LCD.
13	RA1	STOP IN	Input pin which takes in the signal that is output from the programmable divider when a station is tuned during auto tuning (i.e., when the IF count reaches the specified value).
15	R31	POWER OFF OUT	Control output pin used when the power is switched on and off. Power on = low level Power off = high level
18	R50	SERIAL SIG OUT	Output pin for sending serial signals. TXD
19	R51	RELAY OUT	This output pin is synchronized with the POWER button and performs a toggle operation. It drives a relay for switching the power on and off to another piece of equipment.
20	R52	MUTE OUT	Control signal output pin for applying muting to the audio output of the tuner.
21	R53	AUTO/MONO OUT	This signal output pin is synchronized with the input of the MULTI MODE button at the time of FM reception and performs a toggle operation. It is used to control the monaural/stereo switching pin of the FM MPX IC.
22	R60/INT0	SERIAL SIG IN	Input pin for handling serial communications. RXD
23	R61/INT1	50/60 IN	50/60 Hz half wave rectification pulse input pin. (Half wave)
24	R62/INT2	SIGNAL IN	Input pin for detecting that a station is in the vicinity during auto tuning. Active low.
25	R63/INT3	TUNED IN	Pin for taking in the signal when the tuning circuit has been properly tuned. Low level when tuned.
26	Vcc		5V supply pin. (For back ups)
27	R40/SCK1	CLOCK 2 OUT	Clock output pin used for serial data when data is sent to the programmable divider.
28	R41/SI1	ST REQ OUT	Output pin for requesting that the IC count operation be started to the programmable divider when the signal of a local station has been input from the detection IC during auto tuning.
29	R42/SO1	DATA 2 OUT	Serial data output pin for sending data to the programmable divider of the PLL IC.
30	R43/PWN	CE 2 OUT	This (output) pin is set to high level when sending data to the programmable divider, and when finished, the pin is returned to low level and serves to latch the register.
31	R70/BUZZ	INH OUT	Output pin used for forcing off the display of the LCD driver. Low level = forced off High level = display
32	R71/SCK2	CLK 1 OUT	Clock output pin for serial data transmission, used for sending data to the LCD driver.
34	R73/SO2	DATA 1 OUT	Output pin used for sending data to the LCD driver.
36	R81	REMOCON IN	Input pin for the remote control.
37	R90	KR 0 IN	KEY RETURN pulse input pin.
38	R91	KR 1 IN	KEY RETURN pulse input pin.
39	R92	KR 2 IN	KEY RETURN pulse input pin.
40	R93	KR 3 IN	KEY RETURN pulse input pin.
41	RESET		System reset input pin for the microprocessor.
42	OSC 2		System clock input pin for the microprocessor.
43	OSC 1		System clock input pin for the microprocessor. (f = 4 MHz)
44	GND		Ground pin.
47	TEST		Connected to the Vcc (pin 26) pin.
51	D 3	KS12 OUT	KEY STROBE PULSE output pin.
52	D 4	KS11 OUT	KEY STROBE PULSE output pin.
53	D 5	KS10 OUT	KEY STROBE PULSE output pin.
54	D 6	KS 9 OUT	KEY STROBE PULSE output pin.
55	D 7	KS 8 OUT	KEY STROBE PULSE output pin.
56	D 8	KS 7 OUT	KEY STROBE PULSE output pin.
57	D 9	KS 6 OUT	KEY STROBE PULSE output pin.
58	R10	KS 5 OUT	KEY STROBE PULSE output pin.
59	D11/FS 4	KS 4 OUT	KEY STROBE PULSE output pin.
60	D12/FS 3	KS 3 OUT	KEY STROBE PULSE output pin.
61	D13/FS 2	KS 2 OUT	KEY STROBE PULSE output pin.
62	D14/FS 1	KS 1 OUT	KEY STROBE PULSE output pin.
63	D15/FS 0	KS 0 OUT	KEY STROBE PULSE output pin.
64	R00	SDB	Control output pin for switching SDB on and off. On = high level Off = low level

RECEIVER SECTION

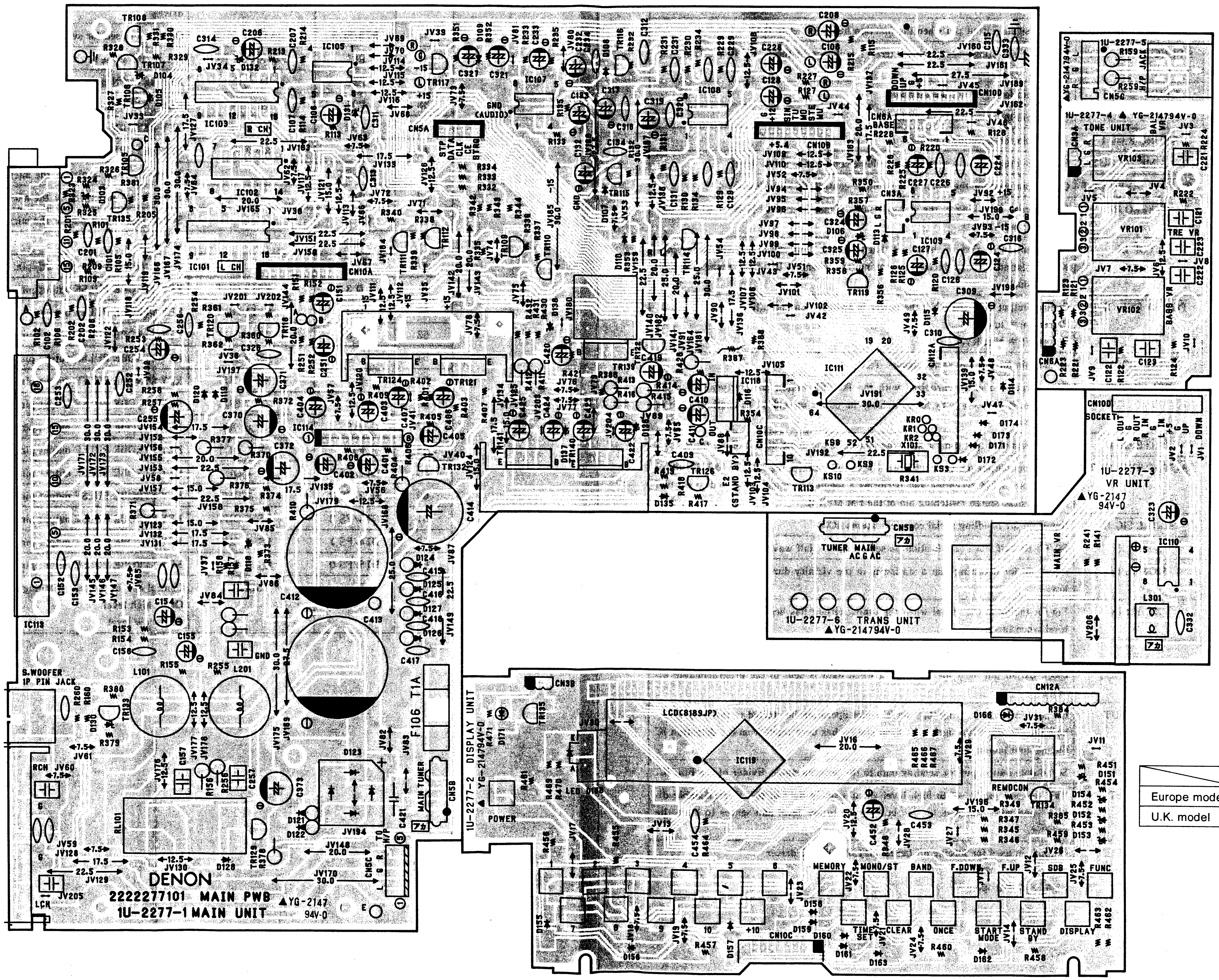
PRINTED WIRING BOARD

1 2 3 4 5 6 7 8

1U-2277 MAIN UNIT ASS'Y

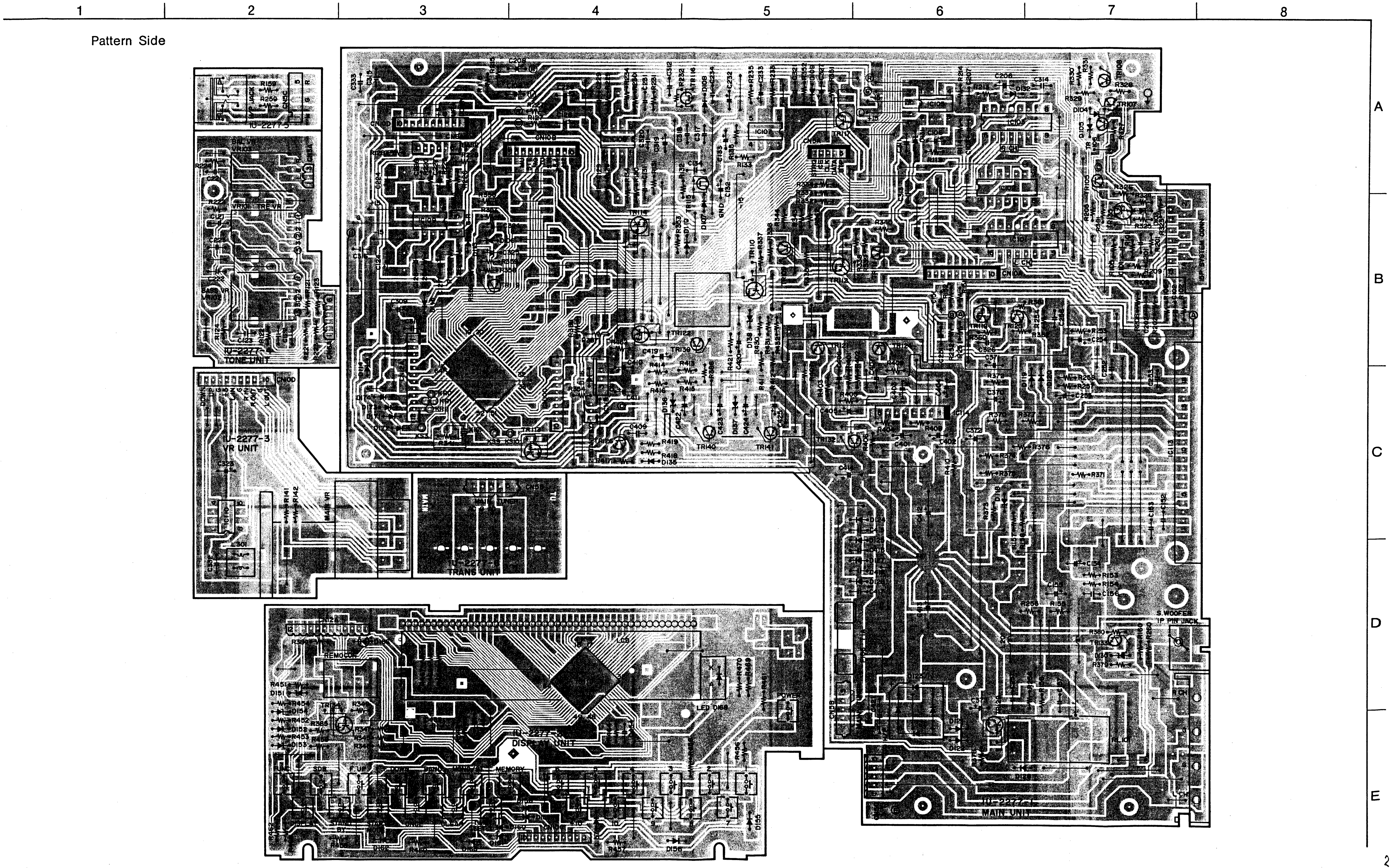
Component Side

A B C D E


TR106
IC105
IC103
R CH
IC102
IC101
L CH
CN10A
CN5A
STP DATA CLK CE STRB
GND (AUDIO)
IC107
IC108
CN109
CN5A BASE
IC109
IC111
IC114
IC118
TR124
TR121
TR132
TR126
TR113
X101
IC113
S.WOOFER
1P PIN JACK
L101
L201
RL101
RCH
LCH
DENON
2222277101 MAIN PWB
1U-2277-1 MAIN UNIT
▲YG-2147
94V-0
MAIN TUNER
CN5B
F106 T1A
1U-2277-5
R159
R259
H/P JACK
CN5C
1U-2277-4 ▲ YG-214794V-0
TONE UNIT
BAL VR
VR103
VR101
TRE VR
VR102
BASS VR
CN6A
CN100
SOCKET
L OUT
R OUT
L IN
DOWN
1U-2277-3
VR UNIT
▲YG-2147
94V-0
IC110
L301
CN5B
TUNER MAIN
AC & AC
MAIN VR
1U-2277-6 TRANS UNIT
▲YG-214794V-0
1U-2277-2 DISPLAY UNIT
▲ YG-214794V-0
CN3B
CN12A
LCD(8189JP)
IC119
POWER
LED
REMOCON
MEMORY
MONO/ST
BAND
F.DOWN
F.UP
SDB
FUNC
TIME SET
CLEAR
ONCE
START MODE
STAND BY
DISPLAY
+10
CN10C

	Main Unit
Europe model	1U-2277B
U.K. model	1U-2277C

Pattern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
IU-2277-5
IU-2277-4
TONE UNIT
IU-2277-3
VR UNIT
MAIN VR
MAIN TUNER
IU-2277-6
TRANS UNIT
IU-2277-2
DISPLAY UNIT
LCD
REMOCON
LED D169
POWER
MEMORY
S.WOOFER
1P PIN JACK
IU-2277-1
MAIN UNIT

RECEIVER SECTION

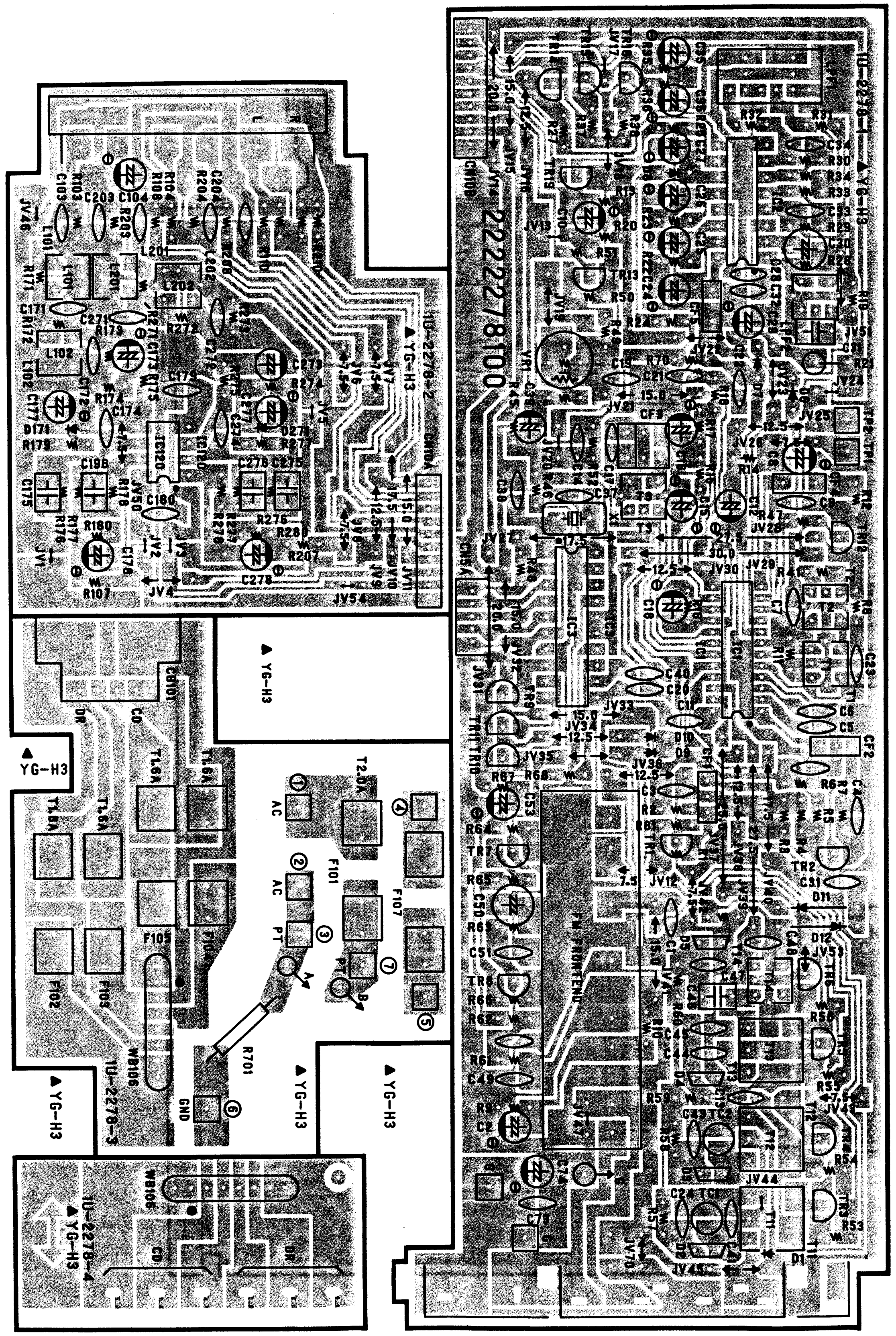
1 2 3 4 5 6 7 8

A B C D E

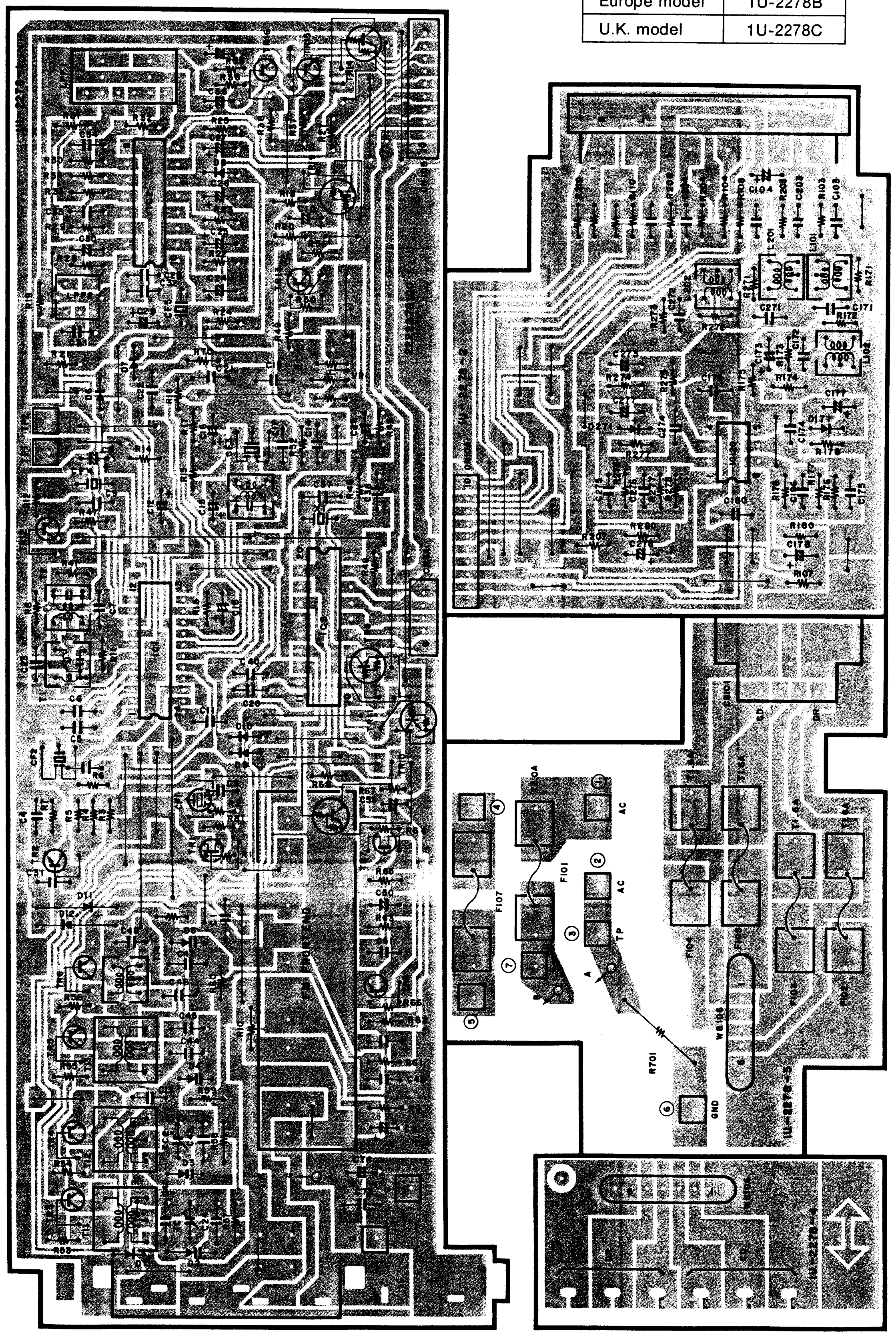
1U-2278 TUNER UNIT ASS'Y

	Tuner Unit
Europe model	1U-2278B
U.K. model	1U-2278C

Component Side



1U-2278-2
1U-2278-3
1U-2278-4
2222278100
YG-H3
FM FRONTEND
W8106
R701
GND
AC
F101
F102
F103
F104
F105
F107
CN100
CN101



YG-H3
W8106
R701
GND
AC
F101
F104
F107

NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4 W Type in the P. W. Board parts list. (Refer to the Schematic Diagram for those parts.)

- **Resistors**

Ex.:	RN	14K	2E	182	G	FR
	Type	Shape and performance	Power	Resistance	Allowable error	Others

RD : Carbon	2B : ⅛W	F : ±1%	P : Pulse-resistant type
RC : Fixed	2E : ¼W	G : ±2%	NL : Low noise type
RS : Metallic film	2H : ½W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

★Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2 — Indicates number of zeros after effective number
1 8 — 2-digit effective number, decimal point indicated by R.
- Units: ohm

- **Capacitors**

Ex.:	CE	04W	1H	2R2	M	BP
	Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others

CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V		C : CSA part
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type
CF : Metallized	2C : 160V		F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	– : Others	
	2J : 630V		

★Capacity

2 R 2 ⇨ 2.2 μF
2 — 1-digit effective number, decimal point indicated by R.
2 R — 2-digit effective number, decimal point indicated by R.
- Units: μF, (for P, pF (μμF)
- When the dielectric strength is indicated in AC, "AC" is included after the dielec strength value.

1U-2277B MAIN UNIT PARTS LIST for Europe model
1U-2277C MAIN UNIT PARTS LIST for U.K. model

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 0621 003	IC HD14051BP	
IC102	263 0359 006	IC LC4966	
IC103	262 0621 003	IC HD14051BP	
IC105	265 0030 004	IC NJM4558D-D	
IC107～109	263 0609 002	IC NJM2068DDC	
IC110	263 0476 002	IC LB1639	
IC111	262 1484 100	IC HD404729B20FS	μ-Com
IC112	499 0172 002	IC GP1U521X	Remocon Receiver
IC113	265 0073 003	IC STK4152II	
IC114	263 0646 007	IC M5230L	
IC118	263 0586 002	IC NJM78M06FA	Regulator
IC119	263 0533 000	IC LC7852	
TR105～108	293 0317 906	Transistor 2SC2458 (BL)	
TR109	271 0191 906	Transistor 2SA1048 (GR)	
TR110	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR111	271 0191 906	Transistor 2SA1048 (GR)	
TR112	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR113	269 0020 906	Transistor DTC114ES (10k-10k)	built in Resistor
TR114	269 0093 904	Transistor DTA144ES (47k-47k)	built in Resistor
TR115,116	275 0067 906	FET 2SJ40 (D)/(E)	
TR117	269 0063 905	Transistor DTA124ES (22k-22k)	built in Resistor
TR118	269 0020 906	Transistor DTC114ES (10k-10k)	built in Resistor
TR119,120	273 0317 906	Transistor 2SC2458 (BL)	
TR121	271 0206 008	Transistor 2SA1488 (Y)/(G)	
TR122	269 0093 904	Transistor DTA144ES (47k-47k)	built in Resistor
TR124	273 0338 008	Transistor 2SC3851 (Y)/(G)	
TR126	273 0317 906	Transistor 2SC2458 (BL)	
TR126	273 0338 008	Transistor 2SC3851 (Y)/(G)	
TR129	269 0020 906	Transistor DTC114ES (10k-10k)	built in Resistor
TR132	273 0317 906	Transistor 2SC2458 (BL)	
TR133	273 0253 918	Transistor 2SC2878 (A/B)	
TR134～136	269 0020 906	Transistor DTC114ES (10k-10k)	built in Resistor
TR140,141	273 0338 008	Transistor 2SC3851 (Y)/(G)	
D103～105	276 0462 915	Zener Diode HZS6B-2	6V
D106	276 0452 925	Zener Diode HZS3A-3	3V
D107～110	276 0531 901	Diode 1SS254	
D113～116	276 0432 903	Diode 1SS270A	
D118	276 0455 919	Zener Diode HZS4A-2	4V
D119,120	276 0503 900	Diode 1SS198	
D121,122	276 0550 908	Diode 1SR139-200	
⚠D123	**276 0338 007**	**Diode S4VB20F**	**Bridge**
⚠D124～127	**276 0550 908**	**Diode 1SR139-200**	
D128	276 0432 903	Diode 1SS270A	
D130	276 0474 903	Zener Diode HZS12B-1	12V
D131,132	276 0465 925	Zener Diode HZS7B-3	7V
D135	276 0432 903	Diode 1SS270A	
D136,137	276 0462 915	Zener Diode HZS6B-2	6V
D138	276 0474 903	Zener Diode HZS12B-1	12V
D151～154	276 0462 915	Zener Diode HZS6B-2	6V
D155～163	276 0432 903	Diode 1SS270A	
D166	393 9492 906	LED SLR-34MC70F150	LED Green
D168	393 9493 002	LED Ass'y	
D171	276 0432 903	Diode 1SS270A	
D173	276 0432 903	Diode 1SS270A	
D176	276 0432 903	Diode 1SS270A	
	393 4122 006	LCD(8189JP) Ass'y	LCD
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
⚠R156,256	244 2051 987	Metal Oxide Film 4.7 ohm, 1W	RS14B3A4R7JS (S)
⚠R159,259	244 2055 941	Metal Oxide Film 330 ohm, 1W	RS14B3A331JS (S)
⚠R370,371	241 2377 947	Carbon Film 100 ohm, 1/4W (N.B)	RD14B2E101JNBS
⚠R376,377	244 2043 982	Metal Oxide Film 0.22 ohm, 1W	RS14B3AR22JS (S)
⚠R378	244 2052 973	Metal Oxide Film 560 ohm, 1W	RS14B3A561JS (S)

Ref. No.	Part No.	Part Name	Remarks
⚠R404	241 2387 908	Carbon Film 1 ohm, 1/4W (N.B)	RD14B2E010JNBS
⚠R410	241 2387 908	Carbon Film 1 ohm, 1/4W (N.B)	RD14B2E010JNBS
⚠R412	244 2043 924	Metal Oxide Film 68 ohm, 1W	RS14B3A680JS (S)
⚠R413～416	244 2055 938	Metal Oxide Film 6.8 ohm, 1W	RS14B3A6R8JS (S)
⚠R426	244 2055 954	Metal Oxide Film 150 ohm, 1W	RS14B3A151JS (S)
⚠	244 0090 021	Metal Oxide Film 220 ohm, 2W	RS14B3D221JNBF
VR101,102	211 9103 003	Variable Resistor 50k ohm	Tone
VR103	211 9105 001	Variable Resistor 50k ohm	Balance
VR104	211 9067 000	Variable Resistor 100k ohm	Volume
CAPACITORS GROUP			
C101,201, 102,202	253 4538 046	Ceramic 100pF/50V	CC45SL1H101J (DD-3)
C106	254 4195 013	Electrolytic 4.7μF/35V	CE04W1V4R7M (SRA)
C107,207	253 3631 009	Ceramic 150pF/50V	CC45SL1H151J
C108,208	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C115,215	253 1179 008	Ceramic 330pF/50V	CK45B1M331K (DD-3)
C121,221	255 1120 039	Film 0.0018μF/50V	CQ93M1H182J
C122,123, 222,223	255 1121 067	Film 0.022μF/50V	CQ93M1H223J
C124,224	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M
C126,226	253 1179 042	Ceramic 220pF/50V	CK45B1H221K (DD-3)
C127,227	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C128,228	254 4258 002	Electrolytic 4.7μF/35V	CE04W1V4R7M
C129,229, 130,230	253 1179 068	Ceramic 330pF/50V	CK45B1H331K (DD-3)
C131,231	253 1180 044	Ceramic 1500pF/50V	CK45B1H152K (DD-3)
C132	254 4260 032	Electrolytic 0.47μF/50V	CE04W1HR47M
C133	254 4196 025	Electrolytic 0.33μF/50V	CE04W1HR33M (SRA)
C134,234	253 1180 028	Ceramic 1000pF/50V	CK45B1H102K (DD-3)
C141,241	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C151,251	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C152,252	253 1179 068	Ceramic 330pF/50V	CK45B1H331K (DD-3)
C153,253	253 1180 002	Ceramic 680pF/50V	CK45B1H681K (DD-3)
C154,254	254 4258 002	Electrolytic 4.7μF/35V	CE04W1V4R7M
C155,255	254 4261 028	Electrolytic 100μF/50V	CE04W1H101M
C156,256	253 4537 063	Ceramic 47pF/50V	CC45SL1H470J (DD-3)
C157,257	256 1034 034	Metalized 0.047μF/50V	CF93A1H473J
C158,258	253 1179 084	Ceramic 470pF/50V	CK45B1H471K (DD-3)
C206	254 4258 002	Electrolytic 4.7μF/35V	CE04W1V4R7M
C232	254 4196 038	Electrolytic 0.47μF/50V	CE04W1HR47M (SRA)
C233	254 4260 029	Electrolytic 0.33μF/50V	CE04W1HR33M
C309	254 4250 767	Electrolytic 1000μF/6.3V	CE04W0J102M
C310,311	254 1024 003	Ceramic 0.01μF/50V	CK45F1H103Z
C312～314	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104Z
C317	254 4256 046	Electrolytic 100μF/25V	CE04W1E101M
C318	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104Z
C319	254 4256 046	Electrolytic 100μF/25V	CE04W1E101M
C320	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104Z
C321	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M
C323	254 4252 037	Electrolytic 100μF/10V	CE04W1A101M
C324,325	254 4252 024	Electrolytic 47μF/10V	CE04W1A470M
C326	253 1024 003	Ceramic 0.01μF/50V	CK45F1H103Z
C327	254 4260 082	Electrolytic 10μF/50V	CE04W1H100M
C332,333	253 1042 003	Ceramic 0.01μF/50V	CK45F1H103Z
C370,371	254 4261 028	Electrolytic 100μF/50V	CE04W1H101M
C372	254 4260 087	Electrolytic 10μF/50V	CE04W1H100M
C373	254 4260 090	Electrolytic 22μF/50V	CE04W1H220M
C401,402	254 4260 087	Electrolytic 10μF/50V	CE04W1H100M
C403,404	254 4258 002	Electrolytic 4.7μF/35V	CE04W1V4R7M
C405	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M
C406,407	254 4256 017	Electrolytic 22μF/25V	CE04W1E220M
C409	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104Z
C410	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C411	254 4254 035	Electrolytic 47μF/16V	CE04W1C470M
C412,413	254 4355 002	Electrolytic 6800μF/50V	CE04W1H682MDL
C414	254 4256 790	Electrolytic 2200μF/25V	CE04W1E222MC
C415～418	253 1024 003	Ceramic 0.01μF/50V	CK45F1H103Z

1U-2278B TUNER UNIT PARTS LIST for Europe model
1U-2278C TUNER UNIT PARTS LIST for U.K. model

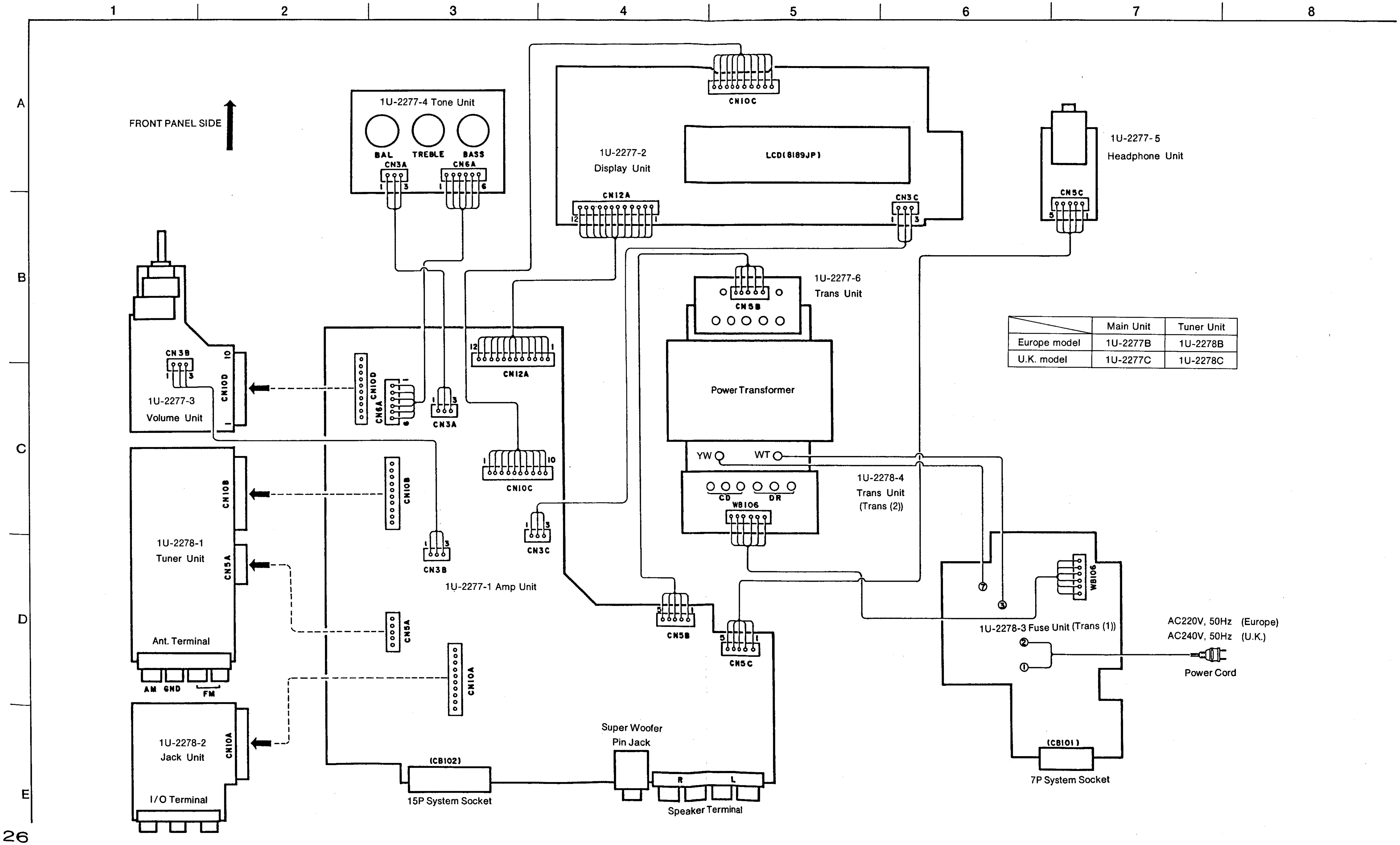
Ref. No.	Part No.	Part Name	Remarks	
C419	254 4254 035	Electrolytic 47μF/16V	CE04W1C470M	
C420	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C421	256 1042 000	Metalized 0.1μF/250V	CF93A2E104K	
C422	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C423	254 4254 035	Electrolytic 47μF/16V	CE04W1C100M	
C424	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C425	254 4254 035	Electrolytic 47μF/16V	CE04W1C470M	
C452	254 4192 029	Electrolytic 47μF/10V	CE04W1A470M	
C453	253 1024 003	Ceramic 0.01μF/50V	CK45F1H103Z	
C454	253 1180 002	Ceramic 680pF/50V	CK45B1H681K (DD-3)	
C801,802	255 1211 025	Film 0.01μF/50V	CK93M1H103J Europe model only	
C803,804	253 9038 907	BC Ceramic 0.047μF/50V	CK45=1H473Z (BC) Europe model only	
C805	253 1024 003	Ceramic 0.01μF/50V	CK45F1H103Z Europe model only	
OTHERS PARTS GROUP				Q'ty
	—	(P.W. Board)		(1)
	202 0040 909	Fuse Clip		2
	212 5606 905	Tact Switch (Light Touch Switch)		24
	212 5604 910	Tact Switch (Light Touch Switch)	POWER	1
L101,201	235 0007 007	Inductor	1μH	2
⚠L301	232 9005 001	Line Filter	for Motor	1
X101	399 9018 003	Ceramic Vibrator	CST4.00MGW	1
	417 0373 008	Heat Sink	for +15C −15	1
	470 0012 022	Pan Screw 3×12 (With Washer, Spring Washer)		5
	417 0307 011	Heat Sink	+5 (for LED, VR)	1
	417 0253 013	Radiator	+12V	1
⚠F106	206 1015 029	Fuse 1AT	F106	1
RL101	214 0128 002	Relay (DH24D2)		1
	449 0055 302	LCD Holder		1
	204 8370 004	Head Phone Jack	D3.6ϕ	1
	205 0690 002	4P Speaker Terminal		1
CB102	204 8284 022	15P System Socket		1
	204 8391 009	1P Pin Jack	Black	1
CN05C	205 0233 058	5P EH Connector Base		1
CN10C	205 0375 000	10P Connector Base (KR-PH)		1
CN12A	205 0375 026	12P Connector Base (KR-PH)		1
CN10A,B,D	205 0535 057	10P Connector Base (KR-PH)		3
CN10D	205 0536 056	10P Connector Socket		1
CN05A	205 0535 073	5P Connector Base		1
CN03A	205 0343 032	3P Connector Base (KR-PH)		1
CN06A	205 0343 061	6P Connector Base (KR-PH)		1
CN05B,05B	205 0185 054	5P Wire Holder		2
CN05C	203 8303 007	5P EH-SCN Connector Cord		1
CN03C	203 4456 068	3P KR-DA Connector Cord	ℓ=100	1
CN06A	204 0204 000	6P KR-DA Connector Cord	ℓ=100	1
CN10D	204 0385 024	10P KR-DS Connector Cord	ℓ=170	1
CN12B	204 9284 024	12P KR-DA Connector Cord	ℓ=150	1
	203 0382 071	1P SIN Connector Ass'y	White ℓ=170	1
	203 0422 038	1P Contact Ass'y	Black ℓ=75	1
	002 0016 090	5C Ribbon Cable	ℓ=250	1
	203 0481 008	1P SIN Connector Ass'y	Black ℓ=100 for GND	1
	203 0481 024	1P SIN Connector Ass'y	Gray ℓ=210	2
CN03B	203 4580 028	3P KR-DA Connector Cord		1
	203 4689 000	3P KR-DS Connector Cord		1
CN-2	001 0059 038	Vinyl Wire Ass'y		1
CN-1	203 0495 007	1P SIN Connector Ass'y		1
	415 0366 030	UL tube (2) Clear		1

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC001	263 0421 002	IC LA1267	
IC002	263 0584 004	IC LA3410	
IC003	262 0703 002	IC LM7000	
IC120	263 0609 002	IC NJM2068DDC	
TR001	275 0051 909	FET 2SK161 (GR)	
TR002	273 0025 023	Transistor 2SC461 (C)	
TR003~006	273 0317 906	Transistor 2SC2458 (BL)	
TR007	275 0053 907	FET 2SK365 (BL/GR)	
TR008	273 0317 906	Transistor 2SC2458 (BL)	
TR009~011	269 0093 904	Transistor DTA114ES (47k-47k)	built in Resistor
TR012,013	273 0317 906	Transistor 2SC2458 (BL)	
TR014	269 0093 904	Transistor DTA144ES (47k-47k)	built in Resistor
TR015,016	273 0317 906	Transistor 2SC2458 (BL)	
TR019	269 0040 902	Transistor DTC114ES (47k-47k)	built in Resistor
D001	276 0432 903	Diode 1SS270A	
D002~005	276 0302 004	Diode SVC321SDA-D-2	Varicap
D006~009	276 0432 903	Diode 1SS270A	
D171,271	276 0432 903	Diode 1SS270A	
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
⚠R021	241 2376 964	Carbon Resistor 47ohm, 1/4W (N.B)	RD14B2E470JNBS
VR001	211 6047 049	Semi Fixed Resistor 22k ohm	V06PB223
CAPACITORS GROUP			
C001	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C002	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C003,004	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C005~007	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C008	254 4260 061	Electrolytic 3.3μF/50V	CE04W1H3R3M
C009	253 4538 046	Ceramic 100pF/50V	CC45SL1H101J (DD-3)
C010	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M
C011	253 1181 001	Ceramic 10μF/50V	CK45F1H103Z (DD-3)
C012	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C013	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C014	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C015	254 4260 074	Electrolytic 4.7μF/50V	CE04W1H4R7M
C016	254 4260 061	Electrolytic 3.3μF/50V	CE04W1H3R3M
C017	253 4538 004	Ceramic 68pF/50V	CC45SL1H680J (DD-3)
C018	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C019	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C020	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C021	253 9030 073	BC Ceramic 0.015μF/25V	CK45=1E153K
C022	253 9031 027	BC Ceramic 0.1μF/25V	CK45=1E104K
C023	253 4536 048	Ceramic 10pF/50V	CC45SL1H100D (DD-3)
C024	253 1182 000	BC Ceramic 0.047μF/50V	CK45F==473Z
C024	254 4260 061	Electrolytic 3.3μF/50V	CE04W1H3R3M
C025	254 4260 032	Electrolytic 0.47μF/50V	CE04W1HR47M
C026	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C027	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M
C028	253 1182 000	BC Ceramic 0.047μF/50V	CK45F==473Z
C029	254 4254 035	Electrolytic 47μF/16V	CE04W1C470M
C030	254 3056 014	Electrolytic 1μF/50V (Bipole)	CE04D1H010MBP
C031	255 4201 984	Film 560pF/50V	CQ93P1H561J
C032~034	253 1179 068	Ceramic 330pF/50V	CK45B1H331K (DD-3)
C035,036	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C037,038	253 4536 048	Ceramic 15pF/50V	CC45SL1H150J (DD-3)
C039	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M
C040	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z
C041	253 4538 004	Ceramic 68pF/50V	CC45SL1H680J (DD-3)
C043	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z
C044	253 1179 042	Ceramic 220pF/50V	CK45B1H221K (DD-3)
C045	253 3632 008	Ceramic 160pF/50V	CC45SL1H161J
C046	255 4201 942	Film 390pF/50V	CQ93P1H391J

Ref. No.	Part No.	Part Name	Remarks	
C047	253 4536 048	Ceramic 15pF/50V	CC45SL1H150J (DD-3)	
C048,049	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)	
C050	254 3056 014	Electrolytic 1μF/50V (Bipole)	CE04D1H010MBP	
C051	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)	
C060	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)	
C104	253 4238 046	Ceramic 100pF/50V	CC45SL1H101J (DD-3)	
C171,172, 271,272	253 1179 042	Ceramic 220pF/50V	CK45B1H221K (DD-3) Europe model only	
C173,273	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C175,275	255 1234 909	Film 0.012μF/50V	CQ93M1H123K	
C176,276	255 1227 903	Film 0.0033μF/50V	CQ93M1H332K	
C177,277	254 4250 026	Electrolytic 100μF/6.3V	CE04W0J101M	
C178,278	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C179,180	253 1181 014	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)	
C204	253 4538 046	Ceramic 100pF/50V	CC45SL1H101J (DD-3)	
C701	253 1181 001	Ceramic 0.01μF/50V	CK45SF1H103Z (DD-3)	
C702	254 4260 045	Electrolytic 1μF/50V	CE04WH010M	
TC001	213 0041 063	Trimmer Condencer		
TC002	213 0034 009	Trimmer Condencer	CTZ-51C	
OTHERS PARTS GROUP				Q'ty
CF001,002	261 0064 007	Ceramic Filter	SFT10.7MS2	2
CF003	261 0046 009	AM Ceramic Filter	SFZ450A	1
CF004	261 0101 009	:AM Ceramic Filter	BFU450C4	1
CF005	261 0103 007	:AM Ceramic Filter	CSB456F11	1
L101,102, 201,202	235 9003 002	FTZ Choke Coil	Europe model only	4
X001	399 0040 009	X'tal (7.2MHz)		1
T001	231 2905 008	FM IF DET Trans (A)		1
T002	231 2906 007	FM IF DET Trans (B)		1
T003	231 3903 009	AM IFT		1
T011	231 1131 004	LW Ant. Trans		
T012	231 0923 008	MW Ant. Trans		1
T013	231 1135 002	LW OSC Coil		
T014	231 1130 007	MW OSC. Coil		1
LP001	232 9002 004	MPX Filter	ABW-07	1
LP002	232 0152 005	Anti Birdie Filter		1
	216 0079 005	FM Front End		1
	205 0433 007	3P Ant. Terminal (DIN.)	for Ant.	1
	204 8346 009	6P Pin Jack (S-GND)	Red, White	1
CB101	204 2429 003	7P System Socket		1
	203 0478 008	1P SIN Connector Ass'y	White ℓ=150	1
	203 0478 011	1P SIN Connector Ass'y	Yellow ℓ=150	1
CN05A	205 0536 072	5P Connector Socket		1
CN10A,10B	205 0536 056	10P Connector Socket		2
CN06B,06B	205 0185 067	6P Wire Holder		2
	002 0008 011	6C Ribbon Cable		1
⚠F101	206 1015 029	Fuse 1A (T)		1
⚠F102~105	206 1015 058	Fuse 1.6A		4
	202 0040 909	Fuse Clip		10
	513 0654 088	Fuse Label (T1.0A)		1
	203 0422 038	1P Contact Ass'y	Black ℓ=75	1

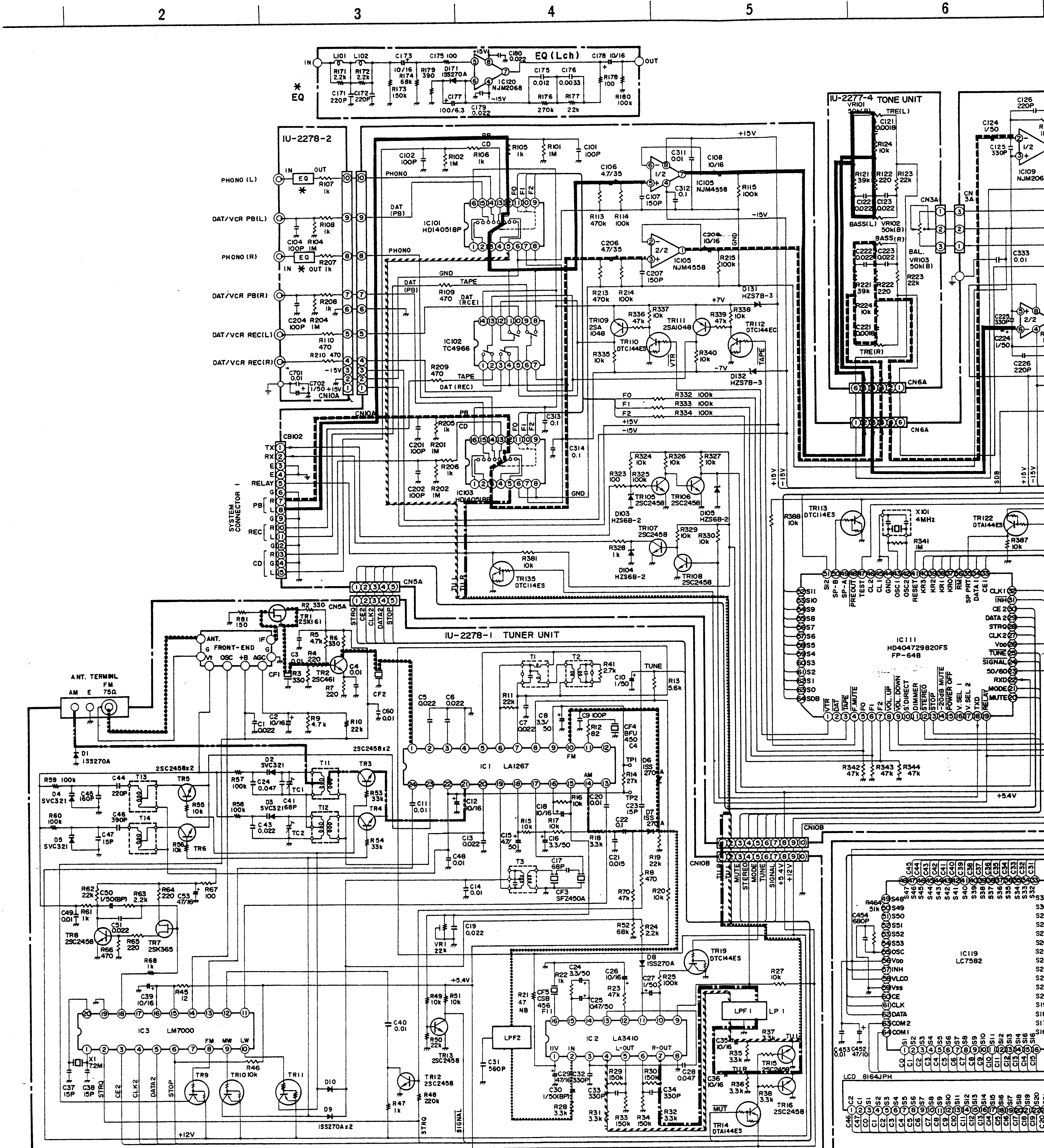
RECEIVER SECTION

WIRING DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
FRONT PANEL SIDE
1U-2277-4 Tone Unit
BAL
TREBLE
BASS
CN3A
CN6A
CN10C
1U-2277-2
Display Unit
LCD(8189JP)
CN12A
CN3C
1U-2277-5
Headphone Unit
CN5C
CN3B
1U-2277-3
Volume Unit
CN10D
CN6A
CN3A
CN12A
CN10C
1U-2277-6
Trans Unit
CN5B
Power Transformer
YW
WT
1U-2278-4
Trans Unit
(Trans (2))
CD
DR
W8106
1U-2278-1
Tuner Unit
CN10B
CN5A
Ant. Terminal
AM
GND
FM
CN3B
CN3C
1U-2277-1 Amp Unit
CN5B
CN5C
W8106
⑦
③
1U-2278-3 Fuse Unit (Trans (1))
②
①
AC220V, 50Hz (Europe)
AC240V, 50Hz (U.K.)
Power Cord
1U-2278-2
Jack Unit
CN10A
I/O Terminal
(CB102)
15P System Socket
Super Woofer
Pin Jack
R
L
Speaker Terminal
(CB101)
7P System Socket

	Main Unit	Tuner Unit
Europe model	1U-2277B	1U-2278B
U.K. model	1U-2277C	1U-2278C

SCHEMATIC DIAGRAM



2
3
4
5
6
EQ (Lch)
EQ
IC120 NJM2068
IU-2278-2
PHONO (L)
DAT/VCR PB(L)
PHONO (R)
DAT/VCR PB(R)
DAT/VCR REC(L)
DAT/VCR REC(R)
CN10A
IC101 HD14051BP
IC102 TC4966
IC103 HD14051BP
IC105 NJM4558
IU-2277-4 TONE UNIT
BASS(L) VR102 50k(B)
BASS(R)
BAL. VR103 50k(B)
TRE(L)
TRE(R)
CN6A
CN3A
IC109 NJM2068
CB102
SYSTEM CONNECTOR I
TX
RX
RELAY
PB
REC
CD
CN5A
IU-2278-1 TUNER UNIT
ANT. TERMINL
AM
E
FM 75Ω
FRONT-END
IC1 LA1267
IC2 LA3410
IC3 LM7000
IC111 HD404729820FS FP-64B
X101 4MHz
IC119 LC7582
LCD 8164JPH
CN10B
LPF1
LPF2
TUNE
+15V
-15V
+5.4V
+12V
DTA144ESx3
1SS270Ax2

WARNING:

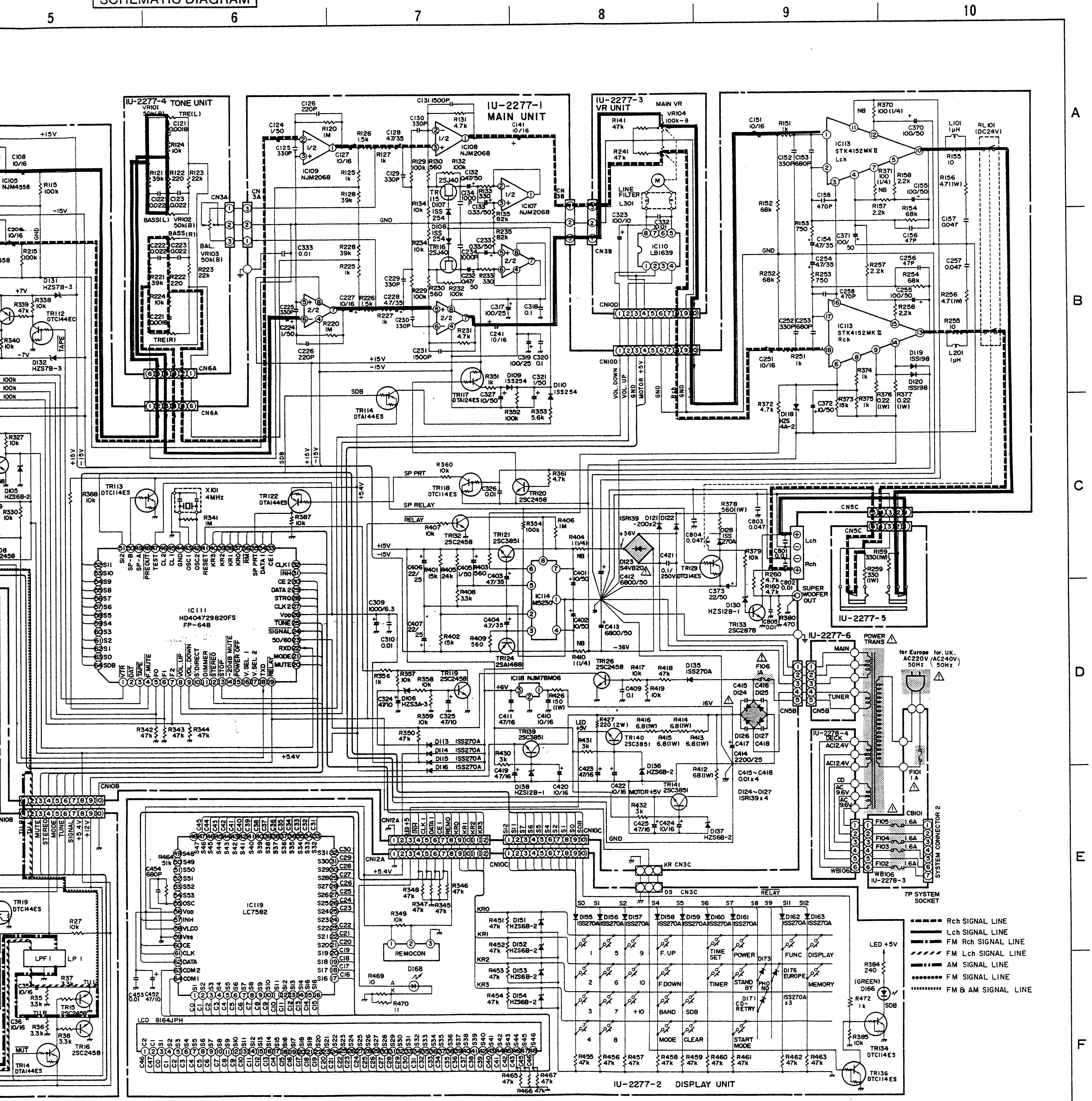
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a
leakage current exceeds 0.5 milliamps, or if the resistance from chassis to
defective.

RECEIVER SECTION

SCHEMATIC DIAGRAM


5
6
7
8
9
10
A
B
C
D
E
F
G
IU-2277-4 TONE UNIT
IU-2277-1 MAIN UNIT
IU-2277-3 VR UNIT
MAIN VR
IC113 STK4152MK II Lch
IC113 STK4152MK II Rch
IC111 HD404729820FS FP-64B
IC114 M5230
IC118 NJM78M06
IC119 LC7582
IU-2277-5
IU-2277-6
POWER TRANS
for Europe AC220V 50Hz
for U.K. (AC240V 50Hz)
IU-2278-4 DECK
IU-2278-3
7P SYSTEM SOCKET
SYSTEM CONNECTOR 2
SUPER WOOFER OUT
LCD 8164JPH
IU-2277-2 DISPLAY UNIT
REMOCON
Rch SIGNAL LINE
Lch SIGNAL LINE
FM Rch SIGNAL LINE
FM Lch SIGNAL LINE
AM SIGNAL LINE
FM SIGNAL LINE
FM & AM SIGNAL LINE

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

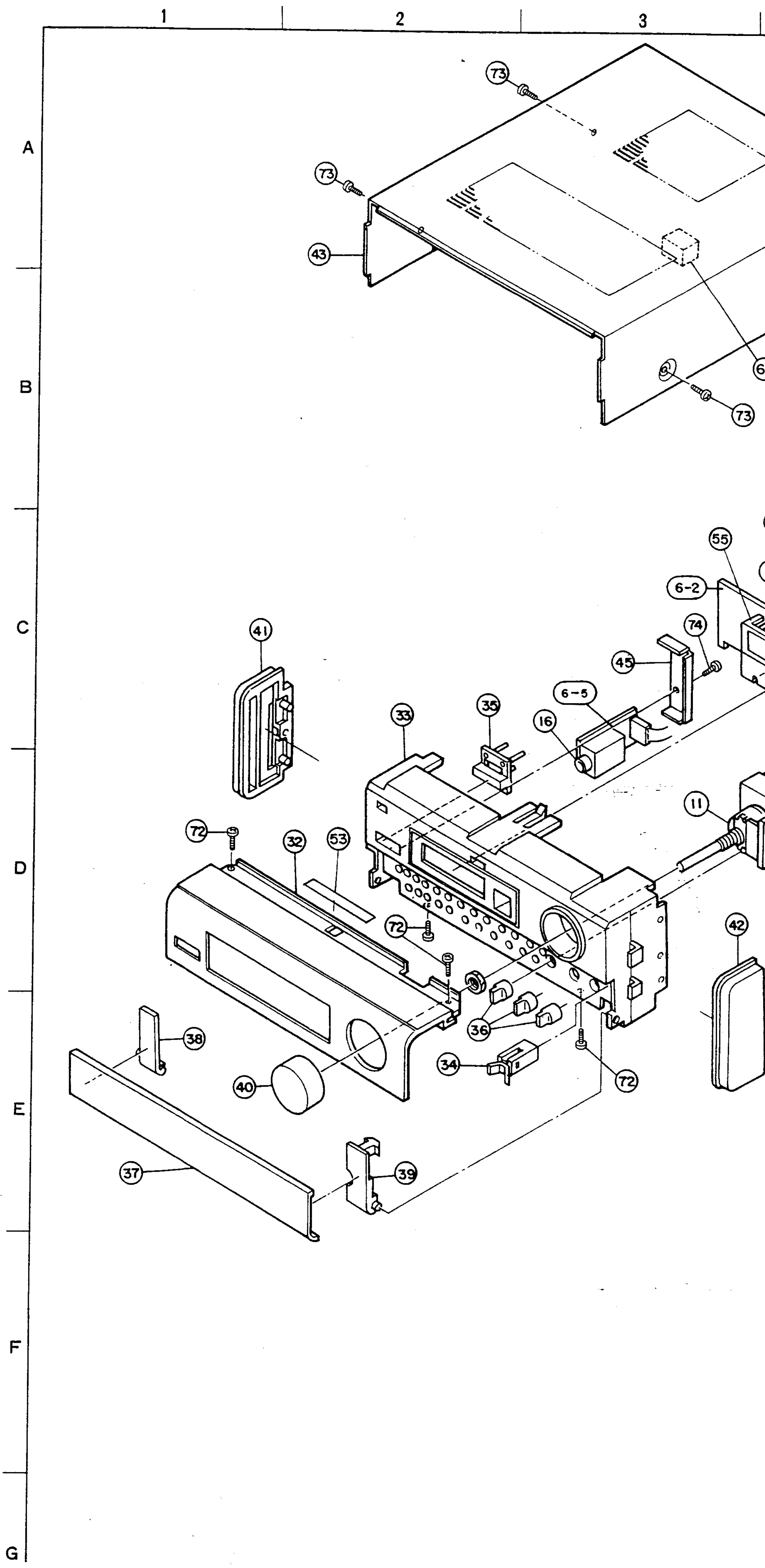
WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

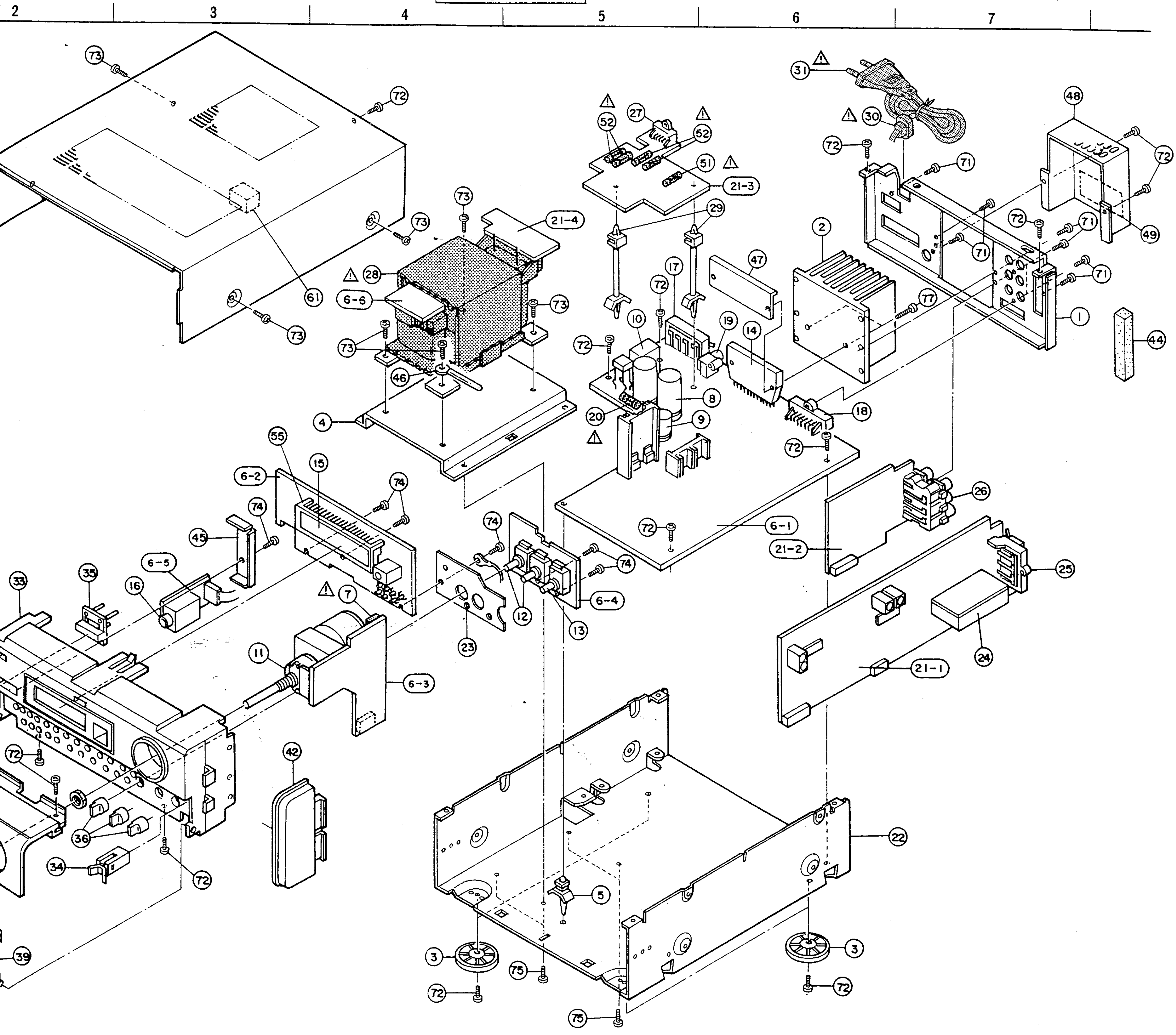
RECEIVER SECTION

EXPLODED VIEW OF PARTS LIST

	Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉	1	105 0974 415	Rear Panel		1
	2	417 9060 207	Radiator		1
	3	104 0253 010	Foot Ass'y		4
◉	4	412 3331 115	Trans Bracket		1
	5	415 9016 019	P.C.B Holder		1
◉	6	1U- 2277 B	Main Unit Ass'y	for Europe model	1S
		1U- 2277 C	Main Unit Ass'y	for U.K. model	1S
	6-1	—	Amp. Unit		(1)
	6-2	—	Display Unit		(1)
	6-3	—	Volume Unit		(1)
	6-4	—	Tone Unit		(1)
	6-5	—	Head Phone Unit		(1)
	6-6	—	Trans Unit		(1)
⚠	7	232 9005 001	Line Filter		1
	8	254 4355 002	Chemicon 6800μF/50V	C412, 413	2
	9	254 4256 790	Chemicon 2200μF/25V	C414	1
	10	214 0128 002	Relay (DH24D2)		1
	11	211 9067 000	Variable Resistor 100k ohm	Main Volume	1
	12	211 9103 003	Variable Resistor 50k ohm	Tone	2
	13	211 9105 001	Variable Resistor 50k ohm	Balance	1
	14	265 0073 003	IC STK4152II		1
◉	15	393 4122 006	LCD Ass'y (8189JP)		1
	16	204 8370 004	Head Phone Jack (ϕ3.6)		1
	17	205 0690 002	4P Push SP. Terminal	Speaker	1
	18	204 8284 022	15P System Socket		1
	19	204 8391 009	1P Pin Jack (Black)	CB102	1
⚠	20	206 1015 029	Fuse (1.0A)	F106	1
◉	21	1U- 2278 B	Tuner Unit Ass'y	for Europe model	1S
		1U- 2278 C	Tuner Unit Ass'y	for U.K. model	1S
	21-1	—	Tuner Unit		(1)
	21-2	—	Jack Unit		(1)
	21-3	—	Trans (1) Unit		(1)
	21-4	—	Trans (2) Unit		(1)
◉	22	411 1099 139	Chassis		1
◉	23	414 0628 102	Shield Sheet		1
	24	216 0079 005	FM Front End		1
	25	205 0433 007	3P Ant. Terminal (DIN)	Antenna	1
	26	204 8346 009	6P Pin Jack (S-GND)		1
	27	204 2429 003	7P System Socket		1
⚠	28	233 5922 000	Power Trans	for Europe model	1
⚠		233 5923 009	Power Trans	for U.K. model	1
	29	409 0052 019	Holder (A)		2
⚠	30	445 0056 008	Cord Bushing	[illegible]	1
⚠	31	206 2098 016	AC Cord	for Europe model	1
		206 2024 006	AC Cord with Label	for U.K. model	1
	32	144 2132 111	Front Panel Ass'y		1
	33	103 1472 318	Inner Panel Ass'y		1
	34	435 0113 009	Latch (Y3Y18)		1
	35	113 1460 013	Power Knob		1
	36	112 0645 153	Head Phone Knob		3
	37	144 2133 110	Trap Door		1
	38	401 0126 200	Door Hinge (L)		1
	39	401 0127 209	Door Hinge (R)		1
	40	112 0691 110	Volume Knob Ass'y		1
	41	146 1279 110	Side Panel (L) Ass'y		1
	42	146 1281 111	Side Panel (R) Ass'y		1
	43	102 0478 129	Top Cover		1
	44	461 0539 080	Rubber Sheet	7×10×70 for Rear Panel	1
	45	441 1389 002	P.W.B Bracket		1
	46	445 0048 003	Cord Holder ℓ=76		1
◉	47	412 3339 201	IC Holder Bracket		1
◉	48	412 3332 017	Radiator Cover		1
	49	513 1845 100	Rating Sheet	for Europe model	1
		513 1845 113	Rating Sheet	for U.K. model	1
★	50	513 8253 009	Approval Mark	for Europe model only	1
⚠	51	206 6015 029	Fuse (1AT)	F101	1
⚠	52	206 1015 058	Fuse (1.6A)	F102~105	4
	53	461 0501 005	Rubber Sheet		1
★	54	461 0577 055	Rubber Sheet	10×15×25 for Chassis	2
	55	449 0055 302	LCD Holder		1
	61	461 9012 029	Cushion		1
★	62	513 1869 005	Caution Label	for U.K. model only	1
★	63	513 1900 003	Homologation Label	for U.K. model only	1
	SCREWS				Q'ty
	71	473 7500 044	Tapping Screw (P) 3×8	Black	9
	72	473 7002 034	Tapping Screw (S) 3×6	Black	20
	73	473 7007 000	Tapping Screw (S) 4×8	Black	8
	74	473 7500 015	Tapping Screw (P) 3×8		7
	75	473 7026 007	Tapping Screw (S) 4×6	Black	4
	77	473 7005 044	Tapping Screw (S) 3×20		2
	78	473 7015 018	Tapping Screw (S) 3×8	Black	1
	79	425 0233 005	Adjust Washer	t0.3 Black Put on Hinge	1
	80	425 0233 018	Adjust Washer	t0.3 Clear Put on Hinge	1
	PACKING & ACCESSORIES (Not included EXPLODED VIEW)				Q'ty
	101	505 0154 082	Cabinet Cover	600×600	1
	102	503 0980 001	Cushion		2
	103	501 1560 026	Sleeve Carton		1
	104	513 1389 006	Control Card Base		1
	105	513 1349 004	Thermal Carbon Film		1
	106	501 1582 004	Master Carbon		1



EXPLODED VIEW



2
3
4
5
6
7
73
72
73
61
73
73
21-4
28
6-6
73
73
46
4
52
27
52
51
21-3
29
17
72
10
19
72
47
14
8
20
9
18
72
6-1
31
30
72
71
48
72
2
72
71
71
77
71
1
49
44
55
15
6-2
74
74
45
6-5
35
16
33
7
74
12
13
6-4
74
23
11
6-3
26
21-2
25
24
21-1
72
42
36
34
72
39
22
5
3
3
75
72
72
75

NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

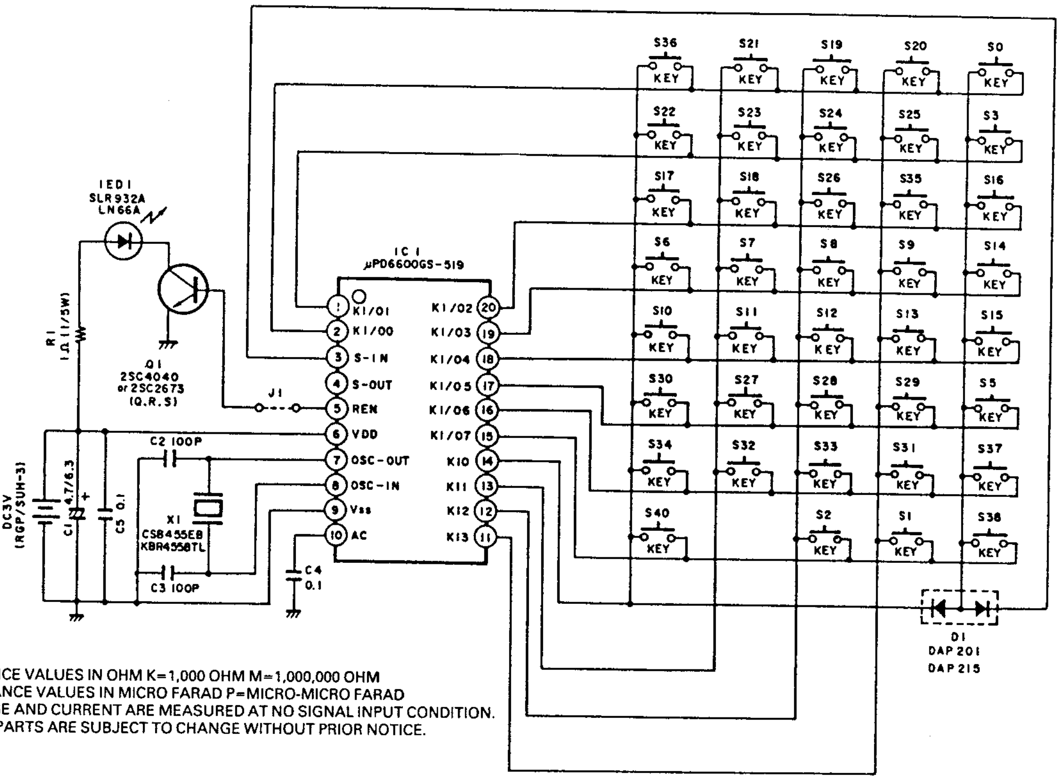
WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

RECEIVER SECTION

REMOTE CONTROLLER (RC-142)

(URC-70: 3990144002)

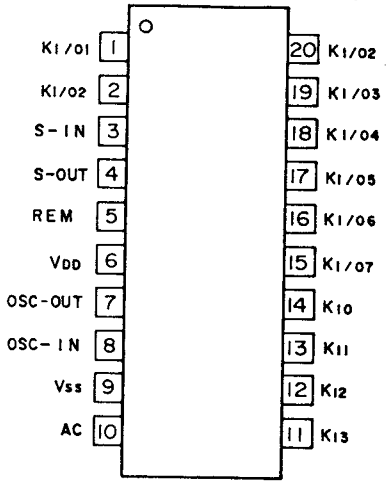
● Schematic Diagram


IED1
SLR932A
LN66A
R1 1Ω (1/5W)
Q1
2SC4040
or 2SC2673
(Q.R.S)
J1
DC3V
(RGP/SUH-3)
C1 4.7/6.3
C5 0.1
C2 100P
X1
CSB455EB
KBR455BTL
C3 100P
C4 0.1
IC1
μPD6600GS-519
KI/01
KI/00
S-IN
S-OUT
REM
VDD
OSC-OUT
OSC-IN
Vss
AC
KI/02
KI/03
KI/04
KI/05
KI/06
KI/07
KI0
KI1
KI2
KI3
S36 S21 S19 S20 S0
S22 S23 S24 S25 S3
S17 S18 S26 S35 S16
S6 S7 S8 S9 S14
S10 S11 S12 S13 S15
S30 S27 S28 S29 S5
S34 S32 S33 S31 S37
S40 S2 S1 S38
KEY
D1
DAP201
DAP215

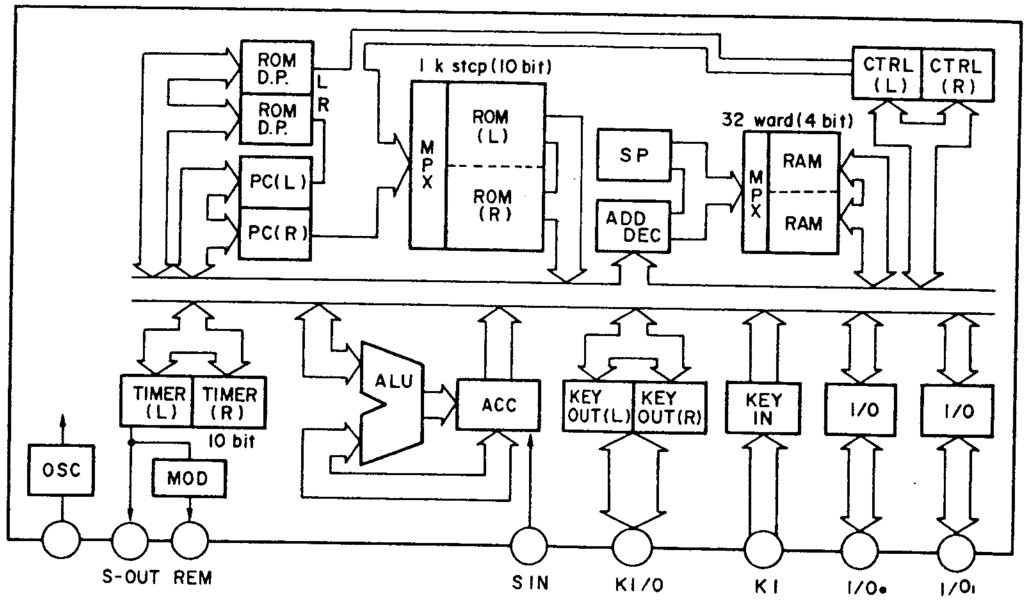
NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

● IC

μPD6600GD-519
Pin Connection Diagram (Top View)


KI/01 1
KI/02 2
S-IN 3
S-OUT 4
REM 5
VDD 6
OSC-OUT 7
OSC-IN 8
Vss 9
AC 10
20 KI/02
19 KI/03
18 KI/04
17 KI/05
16 KI/06
15 KI/07
14 KI0
13 KI1
12 KI2
11 KI3

Block Diagram


ROM D.P.
ROM D.P.
L
R
PC(L)
PC(R)
1 k stcp (10 bit)
MPX
ROM (L)
ROM (R)
SP
ADD DEC
32 word (4 bit)
MPX
RAM
RAM
CTRL (L)
CTRL (R)
TIMER (L)
TIMER (R)
10 bit
ALU
ACC
KEY OUT(L)
KEY OUT(R)
KEY IN
I/O
I/O
OSC
MOD
S-OUT
REM
SIN
KI/O
KI
I/O₀
I/O₁

KEY NO.	FUNCTION	System code					Date code						Expansion code				HEX code (Wide use F)
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K	
S 0	POWER	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	000C0050
S 1	VOLUME ▲	0	0	1	1	0	1	0	1	1	0	0	1	0	0	0	000C004D
S 2	VOLUME ▼	0	0	1	1	0	0	0	1	1	0	0	1	0	0	0	000C004C
S 3	SLEEP	0	0	1	1	0	0	1	0	0	1	1	1	0	0	0	000C0072
S 4	–	0	0	1	1	0	1	1	0	1	0	0	1	0	0	0	000C004B
S 5	TUNER	0	0	1	1	0	1	0	0	1	1	0	1	0	0	0	000C0059
S17	DIRECT CD	0	0	0	1	0	1	1	1	0	1	0	1	0	0	0	00080057
S18	PROG CD	0	0	0	1	0	1	0	1	1	0	0	1	0	0	0	0008004D
S19	▶ CD	0	0	0	1	0	0	0	1	1	1	0	1	0	0	0	0008005C
S20	❚❚ CD	0	0	0	1	0	1	0	1	1	1	0	1	0	0	0	0008005D
S21	■ CD	0	0	0	1	0	0	1	1	1	1	0	1	0	0	0	0008005E
S22	◀◀ CD	0	0	0	1	0	1	1	0	1	1	0	1	0	0	0	0008005B
S23	▶▶ CD	0	0	0	1	0	0	1	0	1	1	0	1	0	0	0	0008005A
S24	❙◀◀ CD	0	0	0	1	0	1	0	0	1	1	0	1	0	0	0	00080059
S25	▶▶❙ CD	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	00080058
S26	CANSEL CD	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	00080051
S27	◀ DECK	0	0	1	0	0	1	1	1	0	0	1	1	0	0	0	00040067
S28	■ DECK	0	0	1	0	0	0	1	1	1	0	1	1	0	0	0	0004006E
S29	▶ DECK	0	0	1	0	0	0	0	1	1	0	1	1	0	0	0	0004006C
S30	◀◀ DECK	0	0	1	0	0	1	1	0	1	0	1	1	0	0	0	0004006B
S31	▶▶ DECK	0	0	1	0	0	0	1	0	1	0	1	1	0	0	0	0004006A
S32	REC REC MUTE DECK	0	0	1	0	0	1	1	1	1	0	1	1	0	0	0	0004006F
S33	REC REC PAUSE DECK	0	0	1	0	0	1	0	1	1	0	1	1	0	0	0	0004006D
S34	OPEN/CLOSE DECK	0	0	1	0	0	0	1	0	0	1	1	1	0	0	0	00040072
S35	TIME CE	0	0	0	1	0	1	1	0	0	1	0	1	0	0	0	00080053
S36	OPEN/CLOSE CE	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	00080050
S37	PHONO	0	0	1	1	0	0	0	1	0	1	0	1	0	0	0	000C0054
S38	DAT/VCR	0	0	1	1	0	0	1	0	0	1	0	1	0	0	0	000C0052
S40	SDB	0	0	0	1	0	0	1	0	1	0	1	1	1	0	0	000800EA

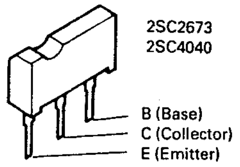
TUNER key after being switched on

KEY NO.	FUNCTION	System code					Data code						Expansion code				HEX code (Wide use F)
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K	
S 6	1	0	0	1	1	0	0	1	0	0	0	0	1	0	0	0	000C0042
S 7	2	0	0	1	1	0	1	1	0	0	0	0	1	0	0	0	000C0043
S 8	3	0	0	1	1	0	0	0	1	0	0	0	1	0	0	0	000C0044
S 9	4	0	0	1	1	0	1	0	1	0	0	0	1	0	0	0	000C0045
S10	5	0	0	1	1	0	0	1	1	0	0	0	1	0	0	0	000C0046
S11	6	0	0	1	1	0	1	1	1	0	0	0	1	0	0	0	000C0047
S12	7	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	000C0048
S13	8	0	0	1	1	0	1	0	0	1	0	0	1	0	0	0	000C0049
S14	9	0	0	1	1	0	1	1	0	0	0	1	1	0	0	0	000C0063
S15	10	0	0	1	1	0	0	0	1	0	0	1	1	0	0	0	000C0064
S16	+10	0	0	1	1	0	1	1	1	1	0	1	1	0	0	0	000C006F

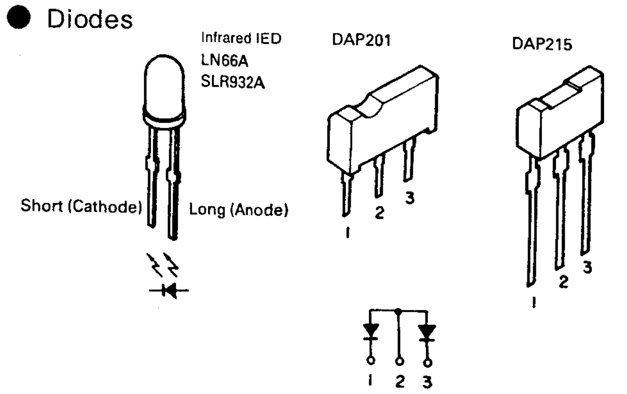
CD PROGRAM and DIRECT keys after being switched on

KEY NO.	FUNCTION	System code					Data code						Expansion code				HEX code (Wide use F)
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	K	
S 6	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	00080042
S 7	2	0	0	0	1	0	1	1	0	0	0	0	1	0	0	0	00080043
S 8	3	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	00080044
S 9	4	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	00080045
S10	5	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	00080046
S11	6	0	0	0	1	0	1	1	1	0	0	0	1	0	0	0	00080047
S12	7	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	00080048
S13	8	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	00080049
S14	9	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0008004A
S15	10	0	0	0	1	0	1	1	0	1	0	0	1	0	0	0	0008004B
S16	+10	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0008004C

● Transistors


2SC2673
2SC4040
B (Base)
C (Collector)
E (Emitter)

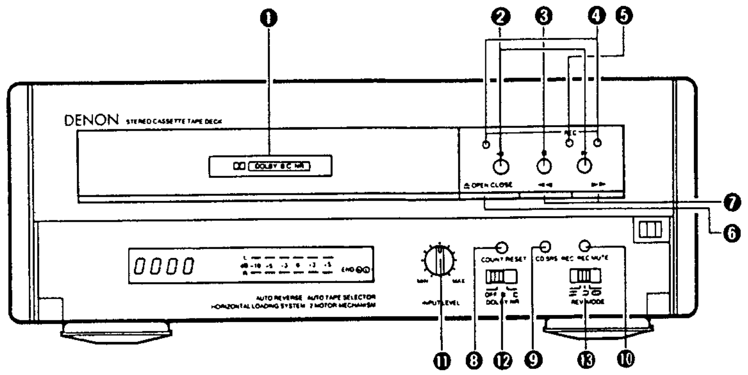
● Diodes


Infrared IED
LN66A
SLR932A
Short (Cathode)
Long (Anode)
DAP201
DAP215
1
2
3

CASSETTE DECK SECTION

PART NAMES AND FUNCTIONS

CASSETTE DECK



❶ **Cassette tray**
The cassette tray opens out when the OPEN/CLOSE button ❻ is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button ❻ again.

❷ **▶ (forward playback button):**
Press this button to record or play the tape in the forward direction.

◀ (reverse playback button):
Press this button to record or play the tape in the reverse direction.

❸ **■ (stop button):**
Press this button while the tape is moving to stop the tape.

❹ **Playback direction indicators**
This flashes during playback.

❺ **Recording indicator**
This lights when the recording or recording standby mode is set using the REC/REC MUTE button ❿, and flashes during the recording mute mode.

❻ **⏏ OPEN/CLOSE button**
Press this button to open and close the cassette tray.

❼ **◀◀ (rewind button):**
Press this button to rewind the tape. When pressed, the playback direction indicators ❹ flash.
Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the current selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection.

▶▶ (fast-forward button):
Press this button to fast-forward the tape. When pressed, the playback direction indicators ❹ flash.
Also, if pressed during playback in the ▶ (forward) direction, the tape is forwarded to the beginning of the next selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the current selection.

❽ **COUNTER RESET button**
Press this button to reset the tape counter to *"0000"*.

❾ **CD SRS (CD synchronized recording button)**
Use this button for CD synchronized recording. Refer to Page 77.

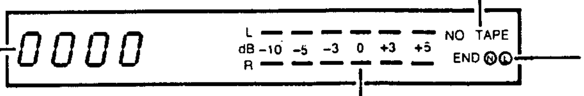
❿ **REC / REC MUTE (recording / recording mute) button**
To record, press the REC/REC MUTE button and the ▶ PLAY button. If only the REC/REC MUTE button is pressed, the deck is set to the recording pause mode. If pressed during recording, the deck is set to the recording mute mode for approximately 5 seconds, after which it is set to the recording pause mode.

⓫ **INPUT LEVEL control**
Use this control to set the recording level.

⓬ **DOLBY NR selector switch**
Use this switch to select the Dolby NR mode, OFF, B or C. During playback, set this switch to the same mode in which the tape was recorded.

⓭ **REV. MODE switch**
Use this to set the reverse mode to one of the following modes: ⇄ (one side mode), ⊐ (reverse mode), ⊂⊃ (continuous mode). In the continuous mode, the tape stops automatically after both sides are played five times.
Refer to Page 11.

CASSETTE DECK DISPLAY



This is the counter.

This is displayed when no tape is loaded.

Refer to next page.

The recording level is displayed here during recording, the playback level during playback.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ᗡD are trademarks of Dolby Laboratories Licensing Corporation.

Remaining Tape Indicators – END, Ⓝ and Ⓛ
These indicators notify that the tape is reaching the end during recording and playback. The indicators differ according to the diameter of the tape hub.

END : This starts flashing when the tape is nearing the end during recording or playback, then stops flashing and remains lit once the end of the tape is reached. After this, the indicator turns off as soon as another mode is set.

Ⓝ : For normal hubs, Ⓝ and END light when the tape is nearing the end. Use these two indicators to determine the amount of tape remaining. The indicator lights when the tape is nearing the end, then turns off when the tape stops.

Ⓛ : When recording or playing tapes with large hubs, Ⓝ and END light when the tape is nearing the end. Use these two indicators to determine the amount of tape remaining. The indicator lights when the tape is nearing the end, then turns off when the tape stops.

Example 1: About 5 minutes from the end of the tape during playback in the forward direction on a 60-minute tape with normal hubs:

END Ⓝ

Example 2: About 8 minutes from the end of the tape during playback in the forward direction on a 60-minute tape with large hubs:

END ⓃⓁ

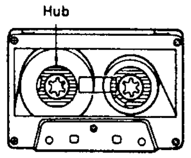
Example 3: About 5 minutes from the end of the tape during playback in the reverse direction on a 60-minute tape with normal hubs:

END ⓃⓁ

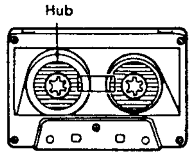
Example 4: About 5 minutes from the end of the tape during playback in the reverse direction on a 60-minute tape with large hubs:

END Ⓛ

- Large hubs are hubs with a diameter of about 27mm.
Note that if the hub is larger than this, there may be a major error in indicating the remaining time.



Normal hub



Large hub

- Use the following table to determine the approximate time to the end of the tape when the END, Ⓝ and Ⓛ indicators start flashing or stop flashing, remaining lit:

Hub diameter / Tape length	Normal hub		Large hub	
	Playback in forward direction	Playback in reverse direction	Playback in forward direction	Playback in reverse direction
C-46	Approx. 1 minute	Approx. 5 minutes	Approx. 1 minutes	Approx. 5 minutes
C-60	Approx. 5 minutes	Approx. 5 minutes	Approx. 8 minutes	Approx. 5 minutes
C-90	Approx. 14 minutes	Approx. 6 minutes	–	–

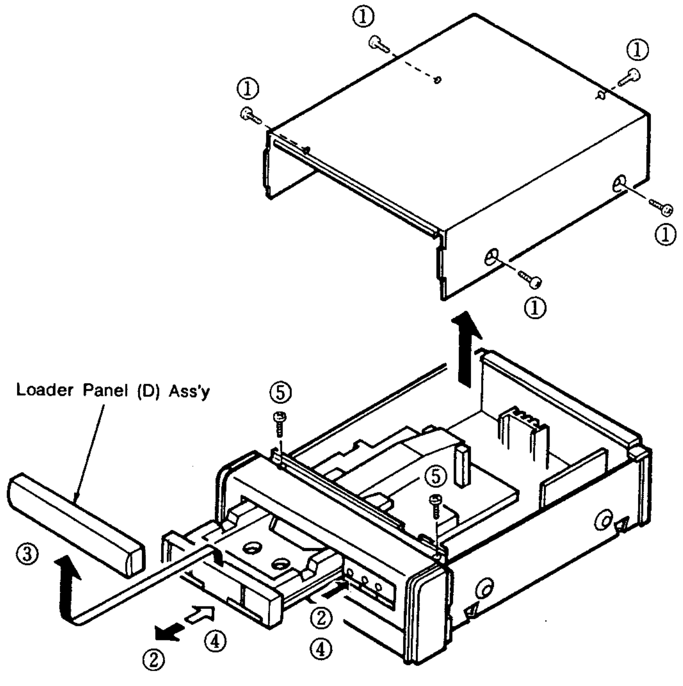
* There are no C-90 tapes with large hubs.

REMOVAL OF EACH SECTION

(Follow this procedure in the reverse order when assembling.)

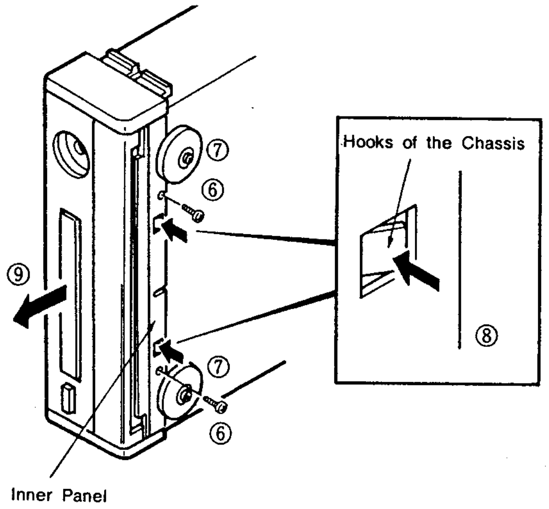
1. Removal of the top cover

① Remove the 5 screws which fasten the top cover.
② Press the ≜ OPEN/CLOSE button and eject the cassette tray.
③ Remove the loader panel (D) assembly in the direction of the arrow.
④ Press the ≜ OPEN/CLOSE button and retract the cassette tray.
⑤ Remove the 2 screws which fasten the front panel assembly. At this time, remove with care the connector which connects the main unit assembly and the front panel side assembly.


①
①
①
①
①
Loader Panel (D) Ass'y
⑤
⑤
③
②
④
②
④

2. Removal of the front panel

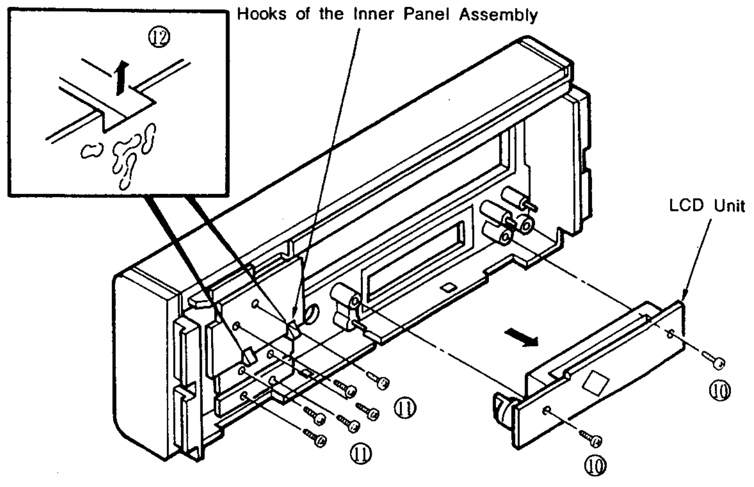
⑥ Stand the main unit as illustrated in the diagram and remove the 2 screws which fasten the inner panel assembly.
⑦ Slightly loosen the screws of the 2 front legs.
⑧ Remove the hooks of the chassis from the inner panel assembly.
⑨ Remove the front panel assembly in the direction of the arrow.


Hooks of the Chassis
⑦
⑥
⑨
⑧
⑦
⑥
Inner Panel

3. Removal of the printed wiring board assembly

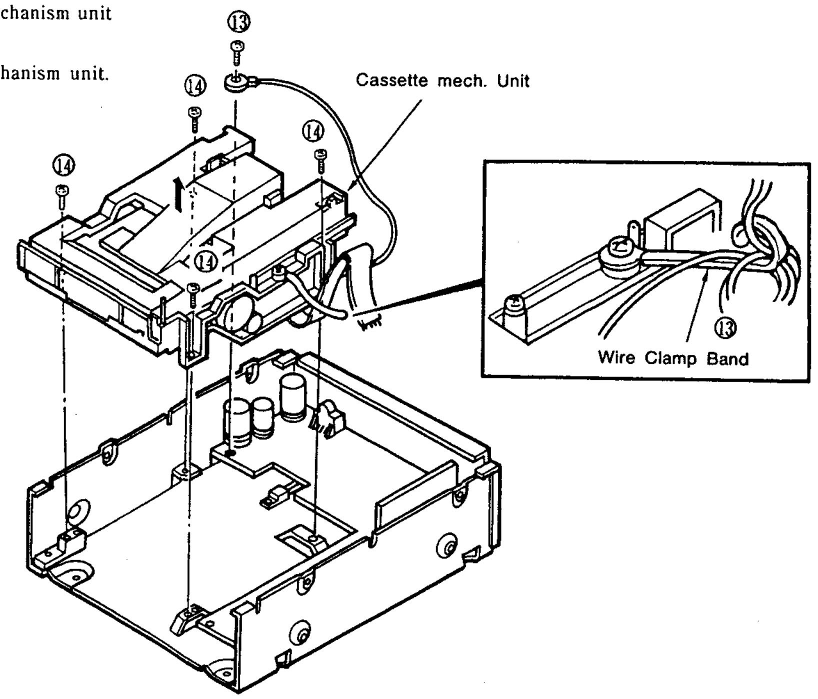
LCD UNIT (1U-2279-4)

⑩ Remove the 2 screws which fasten the LCD unit.
⑪ Remove the 6 screws which fasten the various boards.
⑫ Remove the hooks of the inner panel assembly from the board.


⑫
Hooks of the Inner Panel Assembly
LCD Unit
⑪
⑪
⑩
⑩

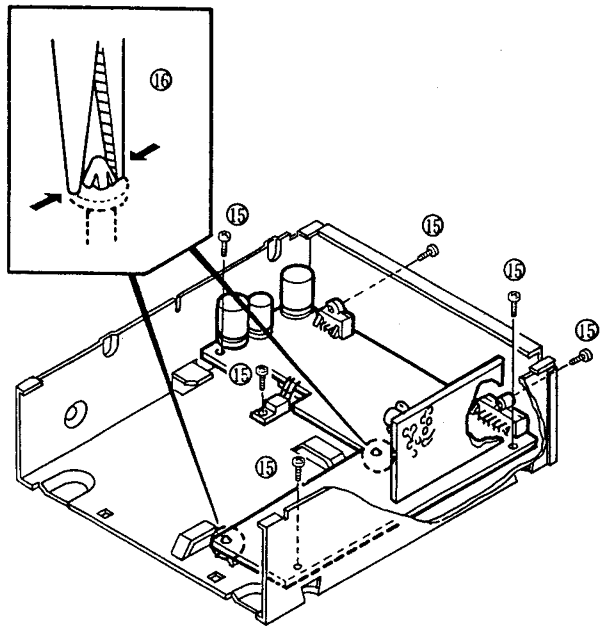
4. Removal of the cassette unit

⑬ After loosening the wire clamp band which bundles the wires, remove the connector which connects the cassette mechanism unit and the main unit assembly.
⑭ Remove the 4 screws which fasten the cassette mechanism unit.


⑬
⑭
Cassette mech. Unit
⑭
⑭
⑭
⑬
Wire Clamp Band

MAIN UNIT ASSEMBLY (1U-2279-1)

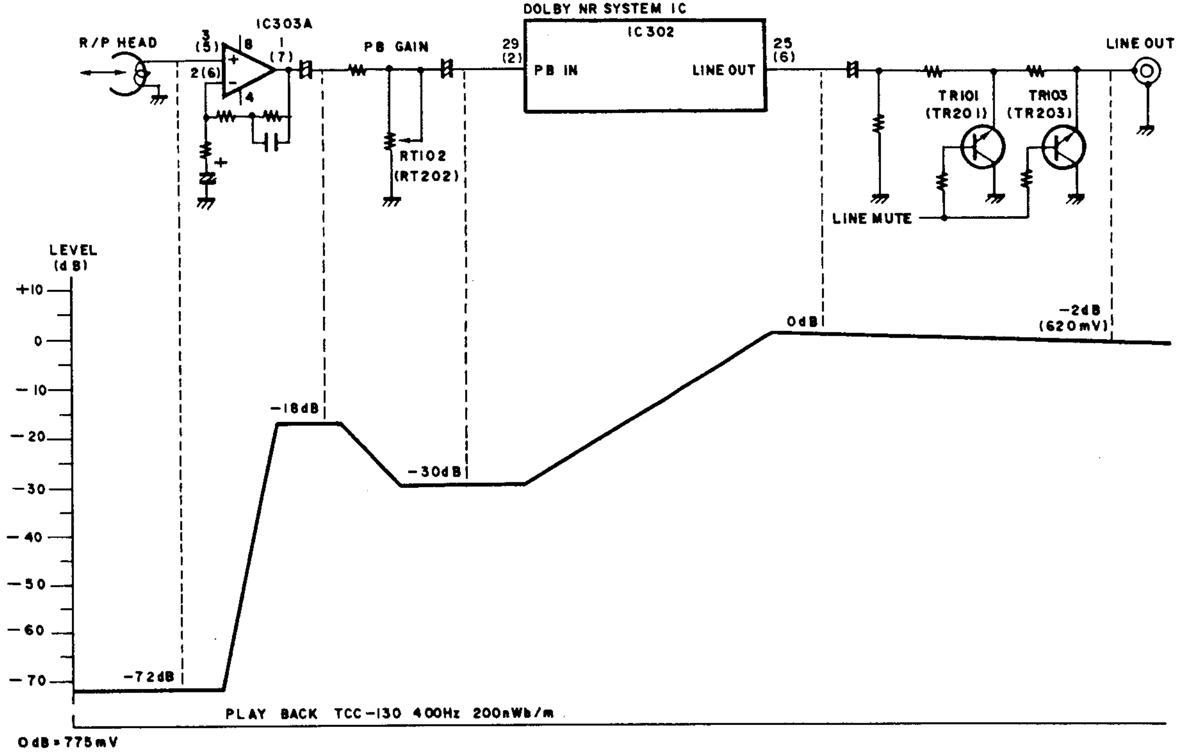
⑮ Remove the 6 screws which fasten the main unit assembly.
⑯ Use radio pliers or another suitable tool to remove the 2 PCB holders which fasten the main unit assembly.



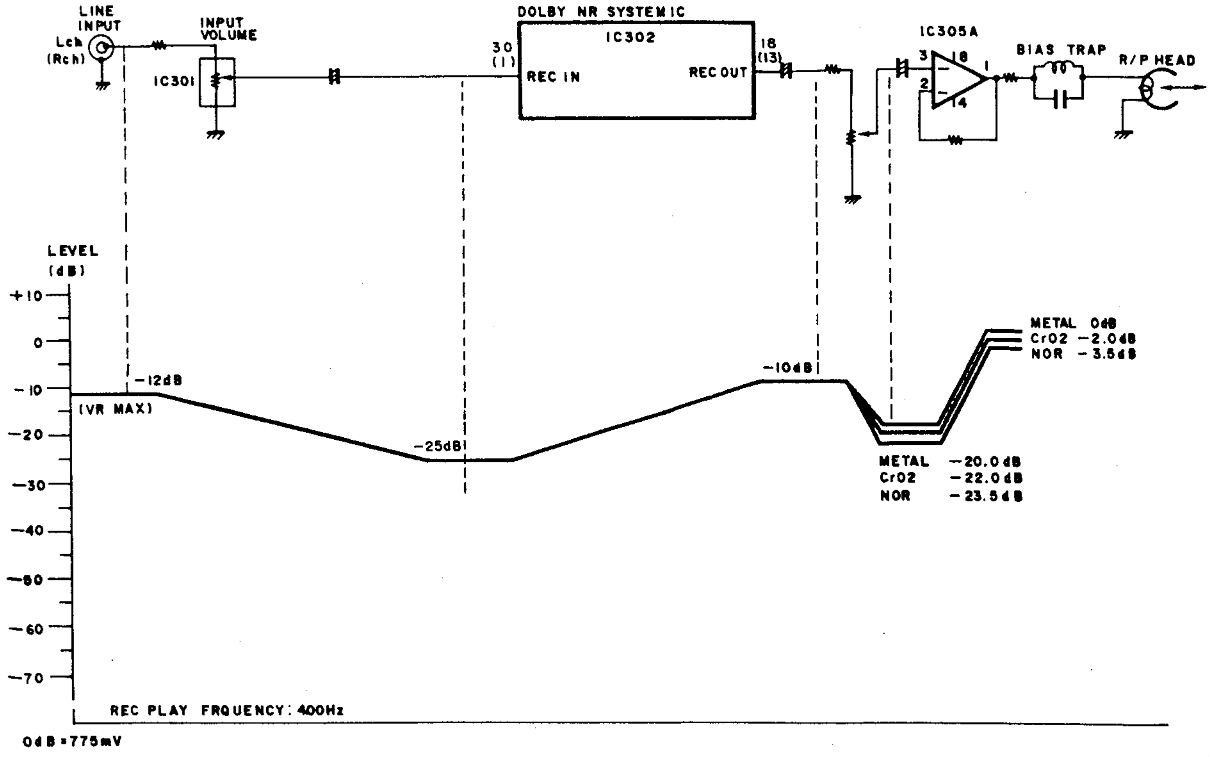
CASSETTE DECK SECTION

LEVEL DIAGRAM

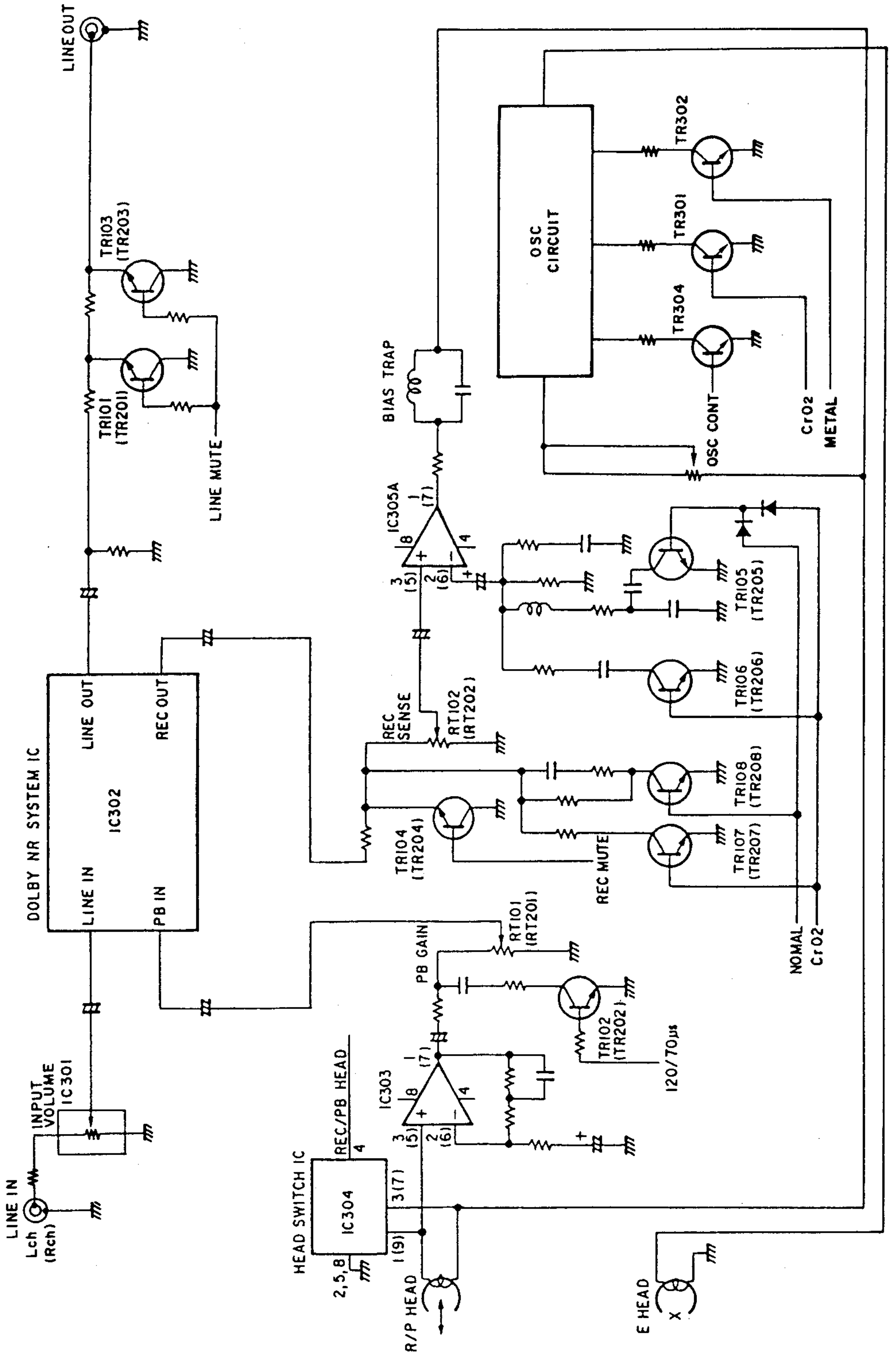
(Playback)
TCC-130 DOLBY B-TYPE
400Hz 200nWb/m


R/P HEAD
IC303A
3 (5)
8
1 (7)
2 (6)
4
PB GAIN
RT102 (RT202)
DOLBY NR SYSTEM IC
IC302
29 (2)
PB IN
LINE OUT
25 (6)
TR101 (TR201)
TR103 (TR203)
LINE MUTE
LINE OUT
LEVEL (dB)
+10
0
−10
−20
−30
−40
−50
−60
−70
−72dB
−18dB
−30dB
0dB
−2dB (620mV)
PLAY BACK TCC-130 400Hz 200nWb/m
0dB=775mV

(Recording)
INPUT FREQUENCY
400Hz


LINE INPUT
Lch (Rch)
INPUT VOLUME
IC301
DOLBY NR SYSTEM IC
IC302
30 (1)
REC IN
REC OUT
18 (13)
IC305A
3
8
2
1
4
BIAS TRAP
R/P HEAD
LEVEL (dB)
+10
0
−10
−20
−30
−40
−50
−60
−70
−12dB
(VR MAX)
−25dB
−10dB
METAL 0dB
CrO2 −2.0dB
NOR −3.5dB
METAL −20.0dB
CrO2 −22.0dB
NOR −23.5dB
REC PLAY FRQUENCY: 400Hz
0dB=775mV

BLOCK DIAGRAM


LINE OUT
TR103 (TR203)
TR101 (TR201)
LINE MUTE
DOLBY NR SYSTEM IC
IC302
LINE OUT
REC OUT
LINE IN
PB IN
INPUT VOLUME IC301
LINE IN Lch (Rch)
BIAS TRAP
OSC CIRCUIT
TR302
TR301
TR304
OSC CONT
CrO2
METAL
IC305A
1 (7)
8
3 (5)
2 (6)
4
TR105 (TR205)
TR106 (TR206)
REC SENSE
RT102 (RT202)
TR108 (TR208)
TR104 (TR204)
REC MUTE
TR107 (TR207)
NOMAL
CrO2
PB GAIN
RT101 (RT201)
TR102 (TR202)
120/70µs
IC303
REC/PB HEAD
HEAD SWITCH IC
IC304
3 (7)
1 (9)
2, 5, 8
R/P HEAD
E HEAD

ADJUSTMENT

Adjustment and checking of the mechanism

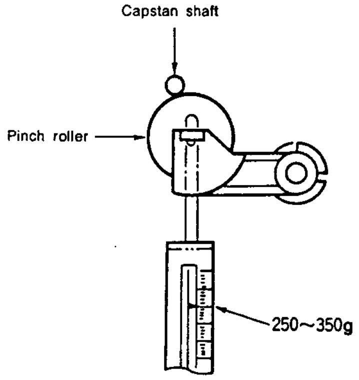
1. Replacement of the pinch roller

Before replacing the pinch roller, clean the tape contact surface of the pinch roller and the tape contact surface of the capstan shaft. After replacement, run a C-90 tape without a pad and check for the presence of tape curl at the tape guide portion of the head.

2. Checking the pinch roller pressure

Set to the playback condition and hook a bar-type spring scale to the bracket above the center line of the pinch roller. Pull the pinch roller away from the capstan shaft, then allow the pinch roller to come into contact with the capstan shaft and check that the reading of the bar-type spring scale is between 250 g and 350 g when the pinch roller starts to rotate.

Replace the pinch roller when the value falls outside of the specified range.



3. Replacement of the recording/playback head assembly

Perform this procedure after removing the front panel.

3-1 Removal of the head assembly

(1) Remove the 2 head base fastening screws.

(2) Remove the head base from the reed holder and the wire connector.

3-2 Mounting the recording/playback head assembly

Perform by following the steps of Section 3-1 Removal of the head assembly in reverse.

4. Adjustment of the recording/playback head

Azimuth adjustment

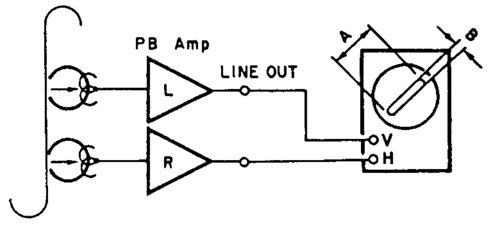
Load side A of the A-BEX TCC-153 test tape facing forward, and adjust.

(1) Play in the FWD direction and turn the azimuth adjustment nut for the FWD side so that the Lissajous's figure becomes maximum at (A) and minimum at (B).

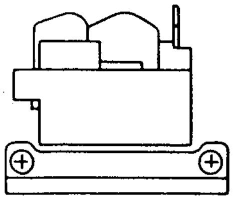
(2) Play in the REV direction and turn the azimuth adjustment nut for the REV side, adjusting the same as in Step (1).

(3) Repeat Steps (1) and (2), making the adjustments again.

(4) Apply screw lock to the adjustment locations.



A-BEX TCC-153



CASSETTE DECK SECTION

5. Checking the winding torque

Load a cassette type torque meter (Sony TW2111A at the FWD side, and Sony TW2121A at the REW side) and check that the reading of the torque meter during playback is 30 to 70 g-cm at the center value.

When outside of the specified value range, check the voltage of the reel motor (approx. 4 V). When the voltage value is low, the torque is weak, and when high, the torque is strong.

6. Checking the back tension torque at the time of recording and playback

Load a cassette type torque meter (Sony W2111A at the FWD side, and Sony TWG121A at the REW side) and check that the reading of the torque meter during playback is 2 to 6 g-cm and that there is no unevenness.

7. Checking the FF and REW torque

Load a cassette type torque meter (Sony TW2231) and check that the value indicated by the torque meter for winding and rewinding is between 90 and 180 g-cm.

8. Checking the FF and REW time

Load a DENON HD-X/60 cassette tape, and check that the time for FF and REW is between 80 and 110 seconds. When outside of the specified range, check Steps 5 and 6.

9. Checking the erroneous erasure prevention, and the metal and chrome switch operations

Check that the detection lever is operating the switch properly depending upon the presence or absence of a hole.

Electrical System Adjustments

● Measuring instruments needed for the adjustments

(1) Low frequency oscillator
(2) Variable resistance attenuator
(3) Electronic voltmeter
(4) Oscilloscope
(5) Frequency counter
(6) Adjustment screwdriver
(7) 4-sided adjustment rod for trap coil adjustments
(8) Test tapes
(Sony TY224)
(A-BEX TCC-153, TCC-130, TCC-262B/162B)
(DENON HDX/60)
(9) Mirror cassette for the transport (A-BEX TCC-902)

● Adjustment precautions

(1) Before adjustments, use gauze or a swab moistened with alcohol to wipe the surface of the heads, the capstan shaft, and the pinch roller.
(2) Demagnetize the record/playback head and the erase head with a head eraser.
(3) Completely demagnetize the driver to be used for the adjustments.
(4) Unless otherwise specified, set the various operation controls as indicated below.
Input control: Maximum (clockwise)
Dolby NR switch: Off

1. Tape transport check

Load the mirror cassette for the transport, and illuminate the area around the fixed guide of the record/playback head with a lamp and observe. Check that the tape edge is not hitting the tape guide portion.

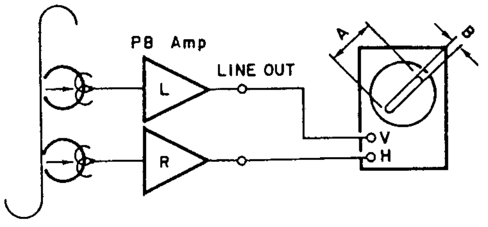
Note that the tape transport is the greatest factor affecting the performance of the cassette deck. Never move the inspection locations without good reason.

For information about replacement and adjustment of the record/playback head, see the section "Adjustment and checking of the mechanism."

2. Azimuth adjustment

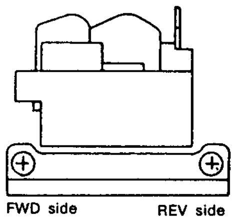
2-1 After making the tape transport check, load the test tape (A-BEX TCC-153).

2-2 Play back the test tape and turn the azimuth adjustment nut so that the Lissajous's figure becomes maximum at (A) and minimum at (B) for both the FWD and REV sides.


PB Amp
LINE OUT
L
R
A
B
V
H

A-BEX TCC-153

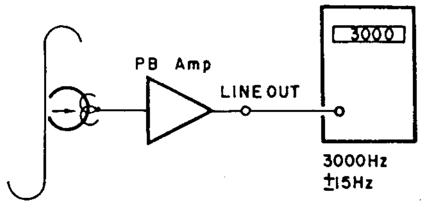
REC/PB Head


FWD side
REV side

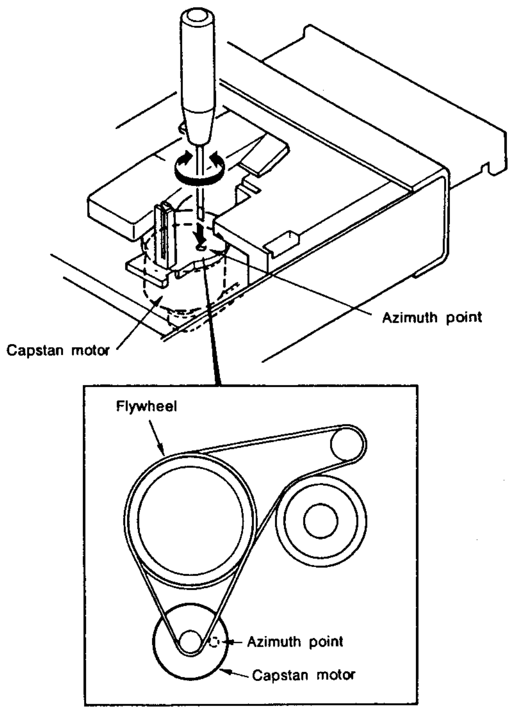
3. Tape speed check and adjustment

3-1 Connect the frequency counter to the LINE OUT pin and load the test tape (Sony TY-224).

3-2 Play back the test tape at an intermediate position of the tape for both the FWD and REW sides so that the transport is stable, and adjust the adjustment screw at the top surface of the capstan motor (Exploded View number 000) so that the reading of the frequency counter is set in a range of 3000 Hz ±15 Hz.


PB Amp
LINE OUT
3000
3000Hz
±15Hz

SONY TY-224


Azimuth point
Capstan motor
Flywheel
Azimuth point
Capstan motor

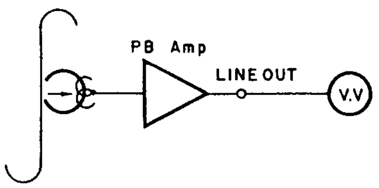
4. Adjustment of the playback system

4-1 Playback level

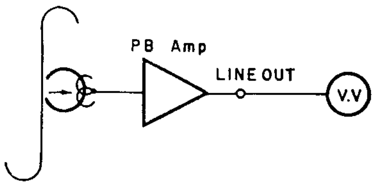
Play back the test tape for the Dolby standard level (A-BEX TCC-130), and adjust RT101 (left channel) and RT201 (right channel) so that the level of the LINE OUT pin becomes −2.0 dBm (620 mV). (Load resistance of 47 kohm)

4-2 Checking the playback frequency response

Play back the test tape (A-BEX TCC-262B/162B), and check that the frequency response satisfies the standard.


PB Amp
LINE OUT
V.V

A-BEX TCC-262B/162B


PB Amp
LINE OUT
V.V

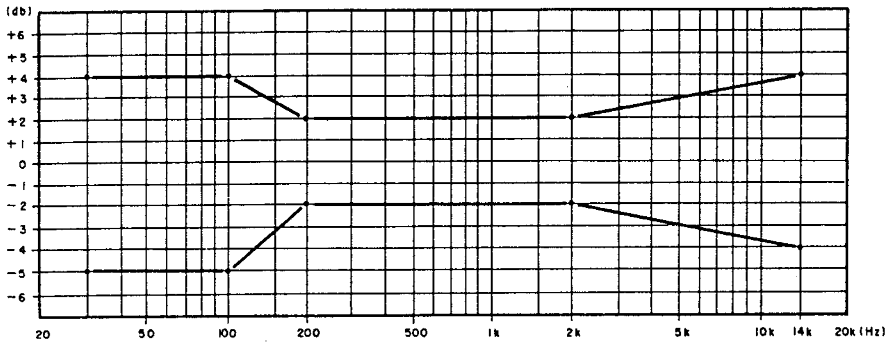
A-BEX TCC-130

NOTE:

After making the azimuth adjustment with the 8 kHz at the start of the A-BEX TCC-262B test tape, perform check of the frequency response. Also, after the check make an azimuth adjustment again with A-BEX TCC-153, then apply screw lock.

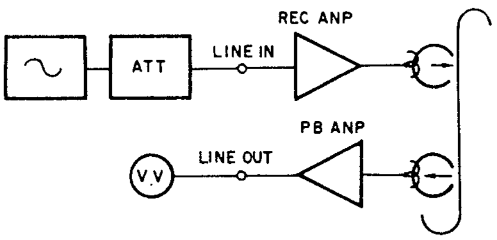
CASSETTE DECK SECTION

Playback Frequency Response



Tape : A-BEX TCC-262B/162B

5. Adjustment of the recording system

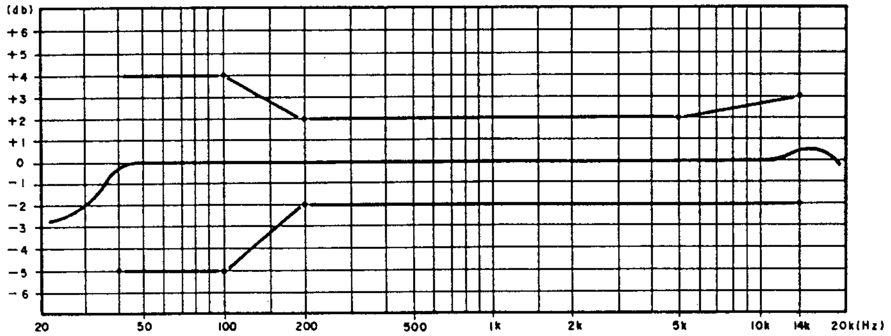


5-1 Adjustment of the recording and playback overall frequency response

(1) Load the DENON HDX/60 test tape, record a signal of −20 dB 1 kHz input level, and play back.

(2) Set the input signal to 10 kHz, record, and play back. Adjust RT103 (left channel) and RT203 (right channel) so that the response specifications of the diagram below are satisfied with respect to the 1 kHz output level.

Recording/Playback Overall Frequency Response



Tape : HD-X/60
Dolby NR : Off
Level : −20 dB From Dolby Level

5-2 Adjustment of the recording/playback level

(1) Load the DENON HDX/60 test tape, record a signal of 1 kHz (−20 dB), and play back.

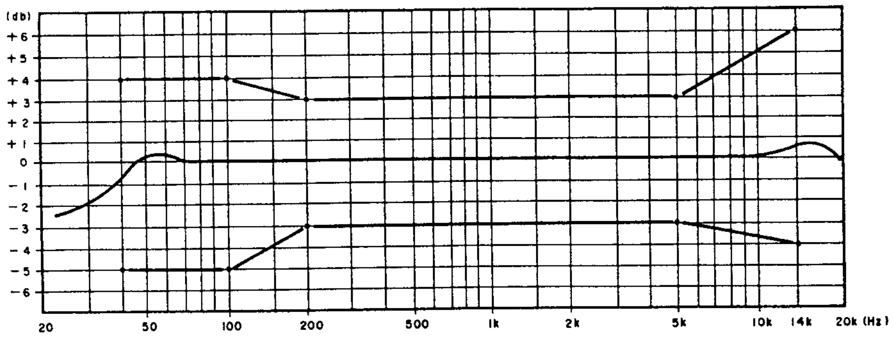
(2) Adjust RT-102 (left channel) and RT-202 (right channel) so that the output of the LINE OUT pin becomes the same as the output at the time of the recording monitor.

5-3 Checking the Dolby C recording and playback overall frequency response

(1) Set the Dolby NR switch to the "C" position.

(2) Use the DENON HDX/60 test tape to record and play back according to the outline of Section 5-1, then check that the response specifications have been satisfied.

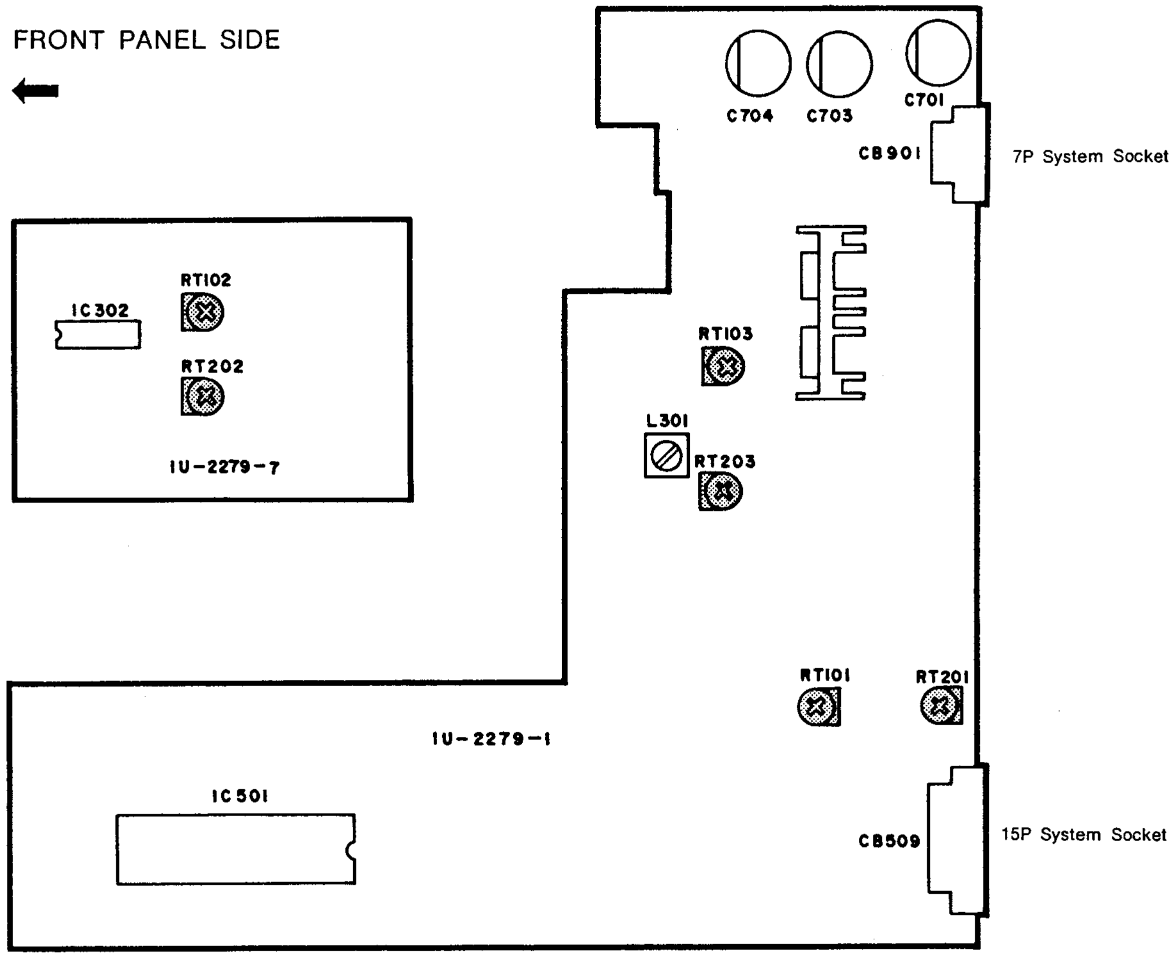
Recording/Playback Overall Frequency Response



Tape : HD-X/60
Dolby NR : On C
Level : −20 dB From Dolby Level

OUTLINE DIAGRAM OF ADJUSTMENT LOCATION

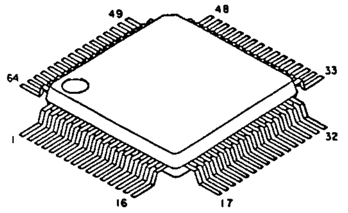
1U-2279A DECK UNIT (Component Side)

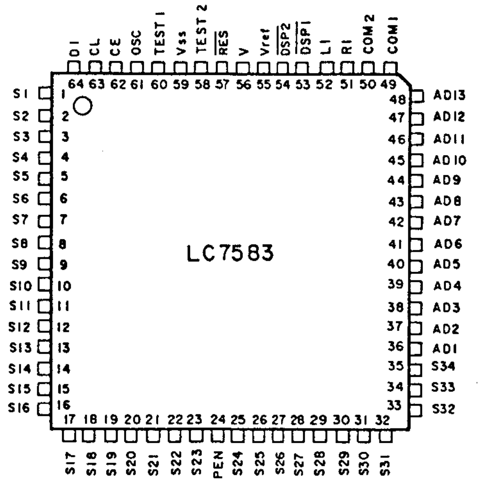

FRONT PANEL SIDE
C704
C703
C701
CB901
7P System Socket
RT102
IC302
RT202
1U-2279-7
RT103
L301
RT203
RT101
RT201
1U-2279-1
IC501
CB509
15P System Socket

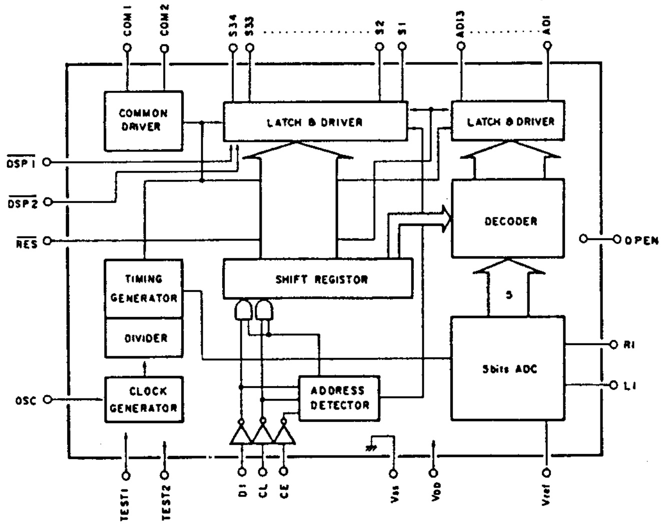
CASSETTE DECK SECTION

● IC's

LC7583 (IC601)
LCD driver with level meter


49
48
64
33
1
32
16
17


DI
CL
CE
OSC
TEST 1
Vss
TEST 2
RES
V
Vref
DSP2
DSP1
L1
R1
COM 2
COM 1
64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
AD13
AD12
AD11
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
S34
S33
S32
LC7583
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
S17
S18
S19
S20
S21
S22
S23
OPEN
S24
S25
S26
S27
S28
S29
S30
S31

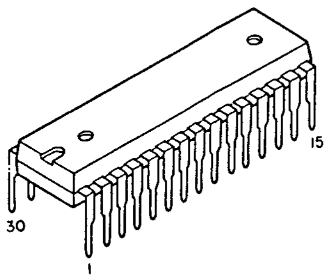

COM 1
COM 2
S34
S33
S2
S1
AD13
AD1
COMMON DRIVER
LATCH & DRIVER
LATCH & DRIVER
DSP1
DSP2
RES
DECODER
OPEN
TIMING GENERATOR
SHIFT REGISTOR
DIVIDER
5
5bits ADC
R1
L1
OSC
CLOCK GENERATOR
ADDRESS DETECTOR
TEST1
TEST2
DI
CL
CE
Vss
VDD
Vref

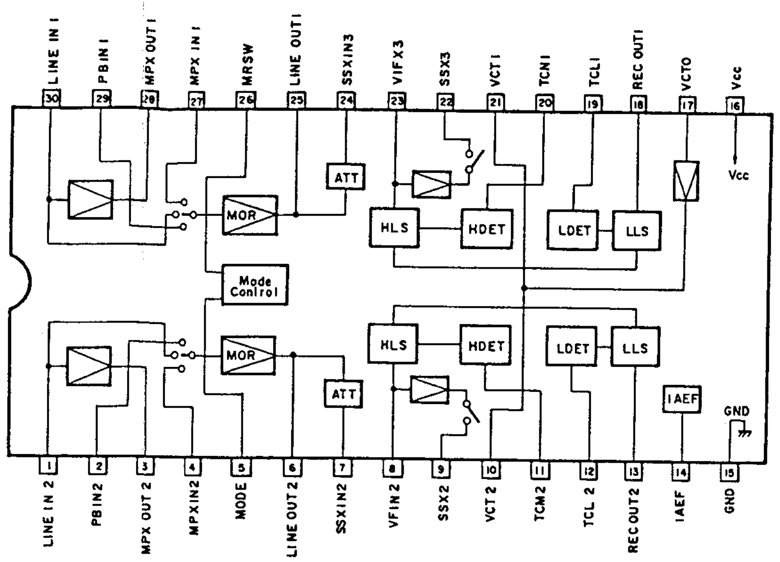
Pin Description

Pin	Pin No.	Description	Active	I/O
S1~S33	1~34	Segment outputs which display the data transferred from the serial data.	–	O
S34	35	Segment output which displays the external input ($\overline{DSP1}$, $\overline{DSP2}$) information.	–	O
AD1~AD13	36~48	Segment outputs which display the ADC input (R1, L1) information. Three kinds of patterns are output depending on the control bits "A1", and "A2". AD1 is the minimum lighting level, and AD13 is the maximum lighting level.	–	O
COM1 COM2	49 50	With the common driver output, the frame frequency is $\frac{fosc}{512}$ Hz.	–	O
R1 L1	51 52	AD converter input pins.	Analog	I
$\overline{DSP1}$ $\overline{DSP2}$	53 54	These are input pins for the direct (external input) display, and their segment output is output from S34.	L	I
Vref	55	Reference power supply pin of the AD converter.	–	–
V_{DD} V_{SS}	56 59	Power supply pins.	–	–
$\overline{RES}$	57	This pin forcefully switches off the display in the initial condition.	L	I
TEST2	58	To be used in the open condition.	–	O
TEST1	60	To be used open or with Vss.	–	I
CE	62	Pins for serial data transfer. Connected with the controller. (microprocessor). CE: Chip enable	H	I
CL	63	CL: Sync clock	⌇	
DI	64	DI: Transfer data	–	
OPEN	24	No connection.	–	–

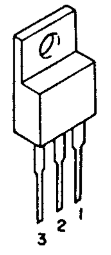
SEMICONDUCTORS

CXA1330S
(IC302)



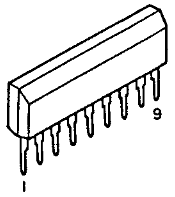

LINE IN 1
PBIN 1
MPX OUT 1
MPX IN 1
MRSW
LINE OUT 1
SSXIN3
VIFX3
SSX3
VCT1
TCN1
TCL1
REC OUT1
VCTO
Vcc
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
Vcc
ATT
MOR
HLS
HDET
LDET
LLS
Mode Control
HLS
HDET
LDET
LLS
MOR
ATT
IAEF
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
LINE IN 2
PBIN 2
MPX OUT 2
MPXIN2
MODE
LINE OUT 2
SSXIN2
VFIN 2
SSX2
VCT 2
TCM 2
TCL 2
REC OUT2
IAEF
GND

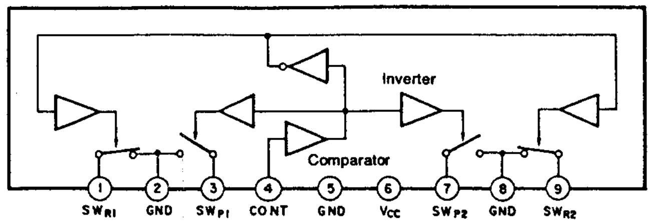
NJM78M06FA (IC901)
NJM78M08FA (IC902)
(Three-terminal positive
constant voltage power supply)



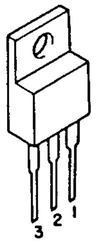
1: Output
2: GND
3: Input

μPC1330HA
(IC304)



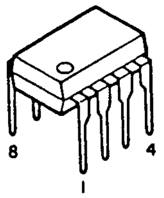

Inverter
Comparator
1
2
3
4
5
6
7
8
9
SWR1
GND
SWP1
CONT
GND
Vcc
SWP2
GND
SWR2

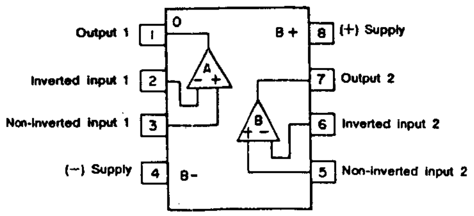
NJM79M08FA (IC903)
NJM79M12FA (IC904)
(Three-terminal negative
constant voltage power supply)



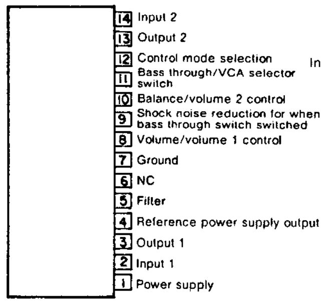
1: Output
2: Input
3: GND

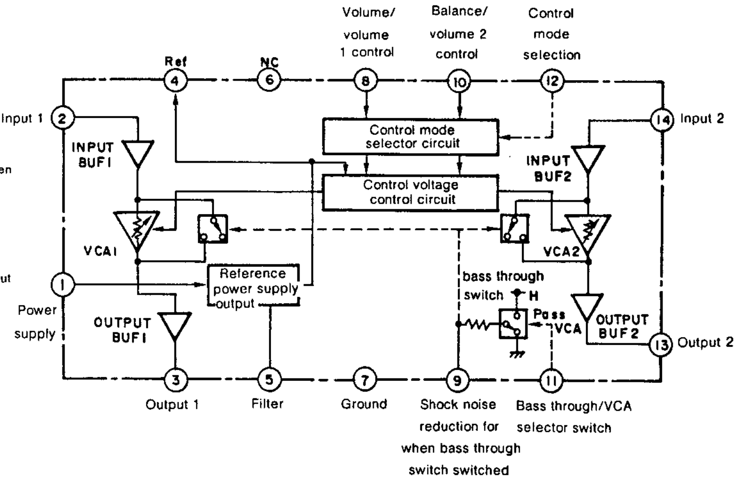
M5218P (IC305)
M5220P (IC303)



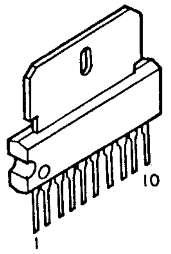

Output 1
Inverted input 1
Non-inverted input 1
(–) Supply
1
2
3
4
O
A
B
B+
B-
8
7
6
5
(+) Supply
Output 2
Inverted input 2
Non-inverted input 2

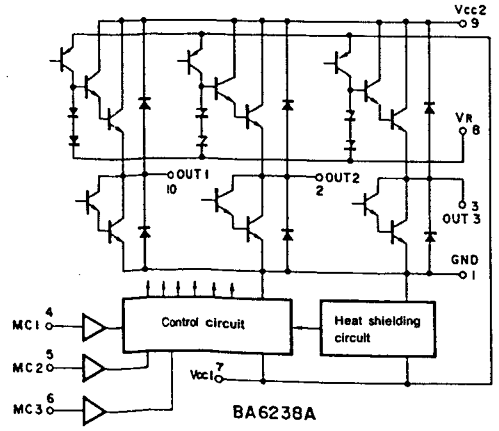
M51131L (IC301)


14 Input 2
13 Output 2
12 Control mode selection
11 Bass through/VCA selector switch
10 Balance/volume 2 control
9 Shock noise reduction for when bass through switch switched
8 Volume/volume 1 control
7 Ground
6 NC
5 Filter
4 Reference power supply output
3 Output 1
2 Input 1
1 Power supply

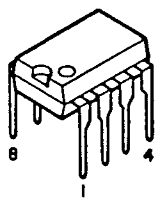

Volume/ volume 1 control
Balance/ volume 2 control
Control mode selection
Ref
NC
4
6
8
10
12
Input 1
2
INPUT BUF1
Control mode selector circuit
Control voltage control circuit
INPUT BUF2
14
Input 2
VCA1
VCA2
Reference power supply output
bass through switch
H
Pass
VCA
1
Power supply
OUTPUT BUF1
OUTPUT BUF2
13
Output 2
3
5
7
9
11
Output 1
Filter
Ground
Shock noise reduction for when bass through switch switched
Bass through/VCA selector switch

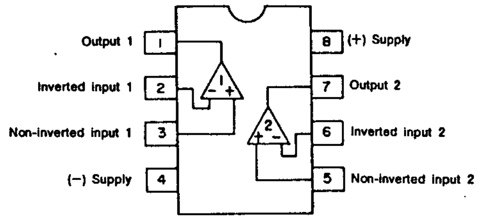
BA6238A Reversible motor driver
(IC503) (2 circuits built in)




Vcc2
9
VR
8
OUT 1
10
OUT2
2
3
OUT 3
GND
1
MC1
4
MC2
5
MC3
6
Control circuit
Heat shielding circuit
Vcc1
7
BA6238A

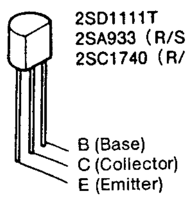
BA15218 (IC307, 308)



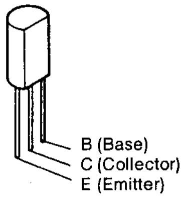

Output 1
Inverted input 1
Non-inverted input 1
(–) Supply
1
2
3
4
8
7
6
5
(+) Supply
Output 2
Inverted input 2
Non-inverted input 2

● Transistors

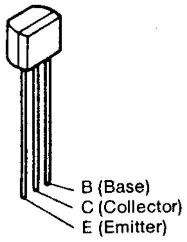
2SD1111T
2SA933 (R/S)
2SC1740 (R/S)


B (Base)
C (Collector)
E (Emitter)

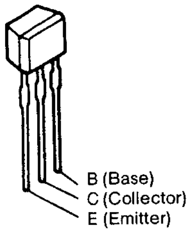
2SB562 (C)
2SD468 (C)


B (Base)
C (Collector)
E (Emitter)

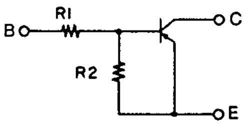
2SA1115 (F)
2SC2603 (E/F)


B (Base)
C (Collector)
E (Emitter)

DTA114ES、144ES ··· PNP Type
DTC114ES、144ES ··· NPN Type

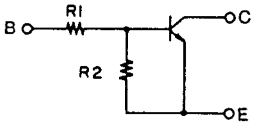

B (Base)
C (Collector)
E (Emitter)

PNP Type



	R1	R2
DTA114ES	10k ohm	10k ohm
DTA144ES	47k ohm	47k ohm

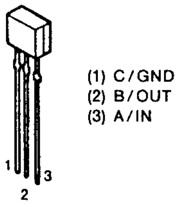
NPN Type



	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm
DTC114TS	10k ohm	–
DTC124XS	22k ohm	47k ohm
DTC323TS	2.2k ohm	–

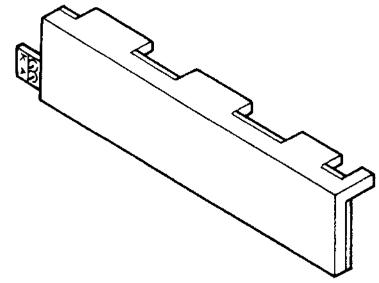
DTC114TS }
DTC124XS } ··· NPN Type

DTC323TS

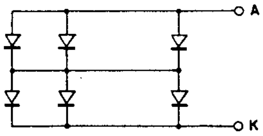

(1) C/GND
(2) B/OUT
(3) A/IN
1
2
3

● LED Ass'y

Part No.: 3939493002 (LD601)



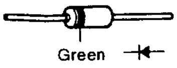
● Wiring Diagram



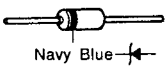
2 in series, 22 parallel = 44 chips

● Diodes (including LED)

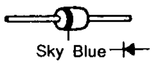
1SS198



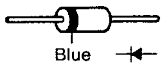
HZS2C-1 HZS6C-2
HZS4A-1 HZS7B-2
HZS4C-1



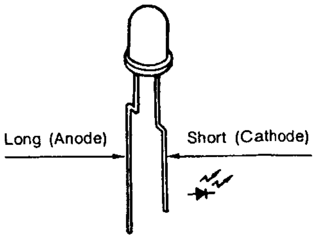
1SS270



1SR35-200A



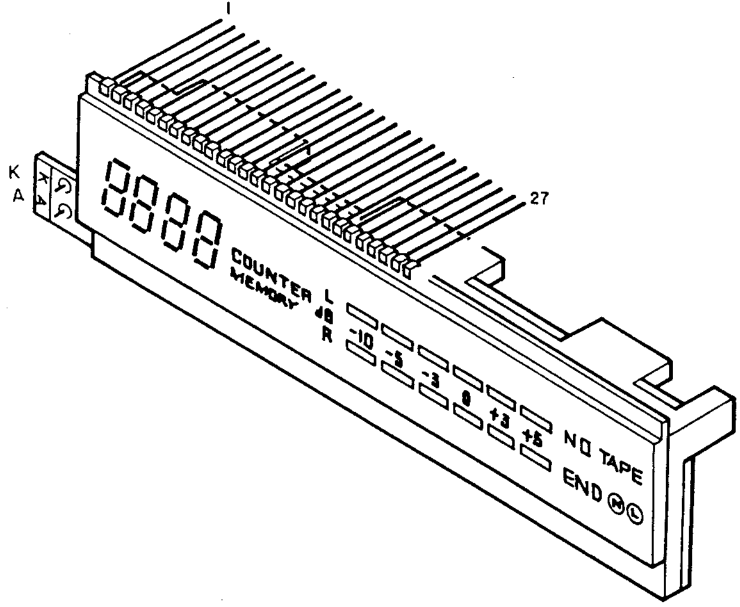
SLR-34VC3F (Red)
SLR-34MC3F (Green)

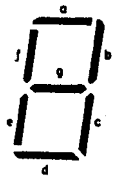

Long (Anode)
Short (Cathode)

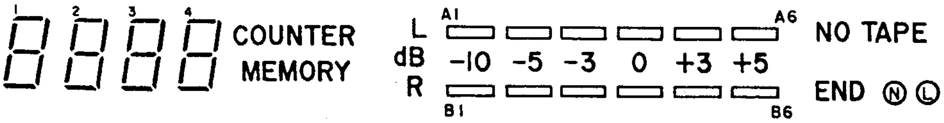
CASSETTE DECK SECTION

● LCD ASS'Y

Part No.: 3934114001


1
27
K
A
COUNTER
MEMORY
L
dB
R
-10
-5
-3
0
+3
+5
NO TAPE
END
Ⓝ
Ⓛ




1
2
3
4
COUNTER
MEMORY
L
dB
R
A1
A6
B1
B6
-10
-5
-3
0
+3
+5
NO TAPE
END Ⓝ Ⓛ

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COM1	COM	–	NO TAPE	Ⓝ	-.	1e	1a	1b	1c	2f	2a	2c	3e	3a
COM2	–	COM	–	Ⓛ	END	1d	1f	1g	2e	2g	2b	2d	3d	3f

No.	15	16	17	18	19	20	21	22	23	24	25	26	27
COM1	3b	3c	4f	4a	4c	–	1)	A1	A2	A3	A4	A5	A6
COM2	3g	4e	4g	4b	4d	2)	–	B1	B2	B3	B4	B5	B6

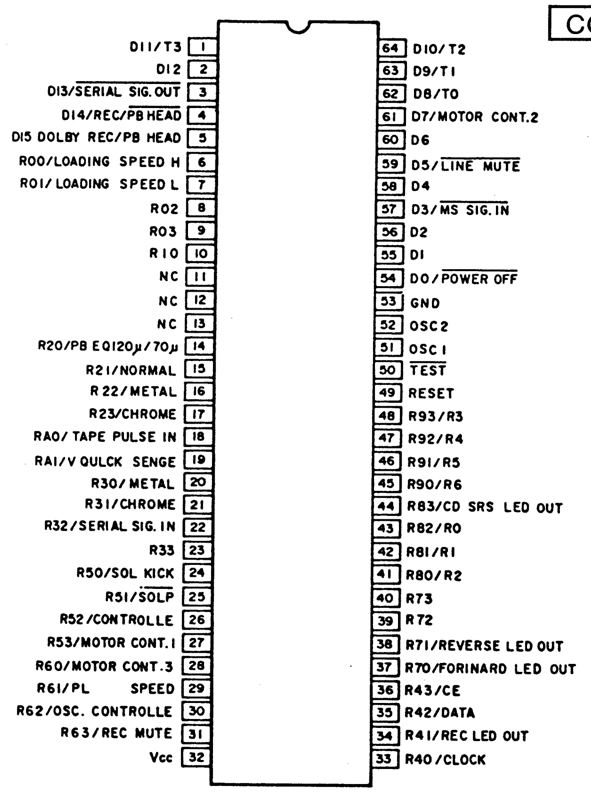
1) L
dB −10 −5 −3 0 +3 +5
R

2) COUNTER
MEMORY

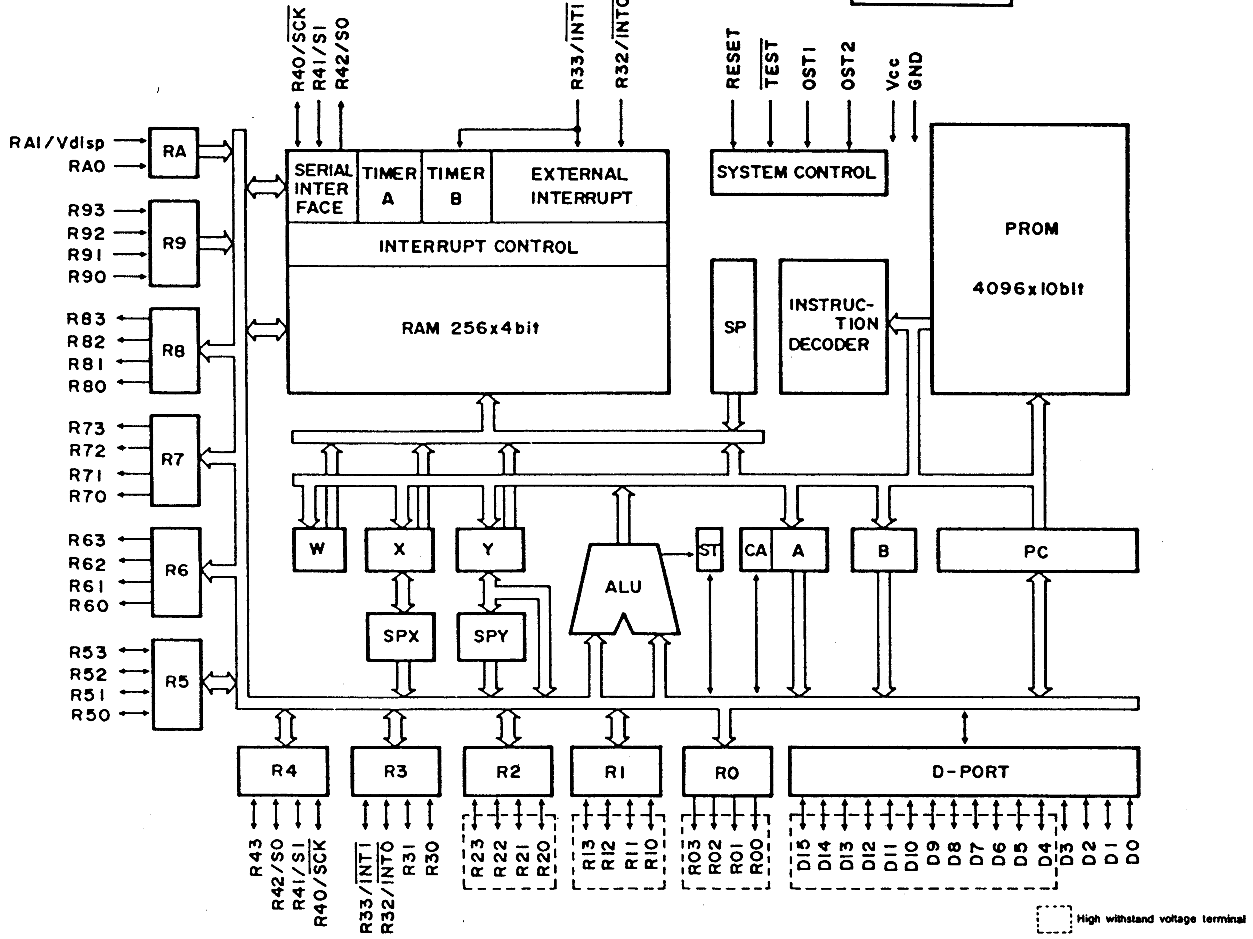
CONTROL CIRCUIT

HD404019RB21S: 2621463105
(CMOS 4-bit single chip microprocessor)

- Major functions
  - Deck control
    1. Deck mechanism control use and signal circuits, control output
    2. Cuing operation, continuous playback
    3. CD synchro operation
    4. Auto function operation



D11/T3 1
D12 2
D13/SERIAL SIG. OUT 3
D14/REC/PB HEAD 4
D15 DOLBY REC/PB HEAD 5
R00/LOADING SPEED H 6
R01/ LOADING SPEED L 7
R02 8
R03 9
R10 10
NC 11
NC 12
NC 13
R20/PB EQ120μ/70μ 14
R21/NORMAL 15
R22/METAL 16
R23/CHROME 17
RA0/ TAPE PULSE IN 18
RA1/V QULCK SENGE 19
R30/ METAL 20
R31/CHROME 21
R32/SERIAL SIG. IN 22
R33 23
R50/SOL KICK 24
R51/SOLP 25
R52/CONTROLLE 26
R53/MOTOR CONT. 1 27
R60/MOTOR CONT. 3 28
R61/PL SPEED 29
R62/OSC. CONTROLLE 30
R63/REC MUTE 31
Vcc 32
64 D10/T2
63 D9/T1
62 D8/T0
61 D7/MOTOR CONT.2
60 D6
59 D5/LINE MUTE
58 D4
57 D3/MS SIG. IN
56 D2
55 D1
54 D0/POWER OFF
53 GND
52 OSC2
51 OSC1
50 TEST
49 RESET
48 R93/R3
47 R92/R4
46 R91/R5
45 R90/R6
44 R83/CD SRS LED OUT
43 R82/R0
42 R81/R1
41 R80/R2
40 R73
39 R72
38 R71/REVERSE LED OUT
37 R70/FORINARD LED OUT
36 R43/CE
35 R42/DATA
34 R41/REC LED OUT
33 R40/CLOCK



R40/SCK
R41/SI
R42/SO
R33/INT1
R32/INT0
RESET
TEST
OST1
OST2
Vcc
GND
RA1/Vdisp
RA0
RA
R93
R92
R91
R90
R9
R83
R82
R81
R80
R8
R73
R72
R71
R70
R7
R63
R62
R61
R60
R6
R53
R52
R51
R50
R5
SERIAL INTER FACE
TIMER A
TIMER B
EXTERNAL INTERRUPT
INTERRUPT CONTROL
RAM 256x4bit
SYSTEM CONTROL
SP
INSTRUCTION DECODER
PROM
4096x10bit
W
X
Y
SPX
SPY
ALU
ST
CA
A
B
PC
R4
R3
R2
R1
R0
D-PORT
R43
R42/SO
R41/SI
R40/SCK
R33/INT1
R32/INT0
R31
R30
R23
R22
R21
R20
R13
R12
R11
R10
R03
R02
R01
R00
D15
D14
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
High withstand voltage terminal

- Pin Description

NO	Pin name	I/O	Signal name	Function
1	D11	O	T3	Strobe signal output pin for the key and switch matrix.
2	D12	I	–	–
3	D13	O	SERIAL SIG. OUT	Serial communications output pin.
4	D14	O	REC/PB HEAD	Output pin for switching the record/playback head. "H" is output for the record head.
5	D15	O	DOLBY REC/PB	Output pin for switching the mode of the Dolby IC (CXA1330s). "H" is output at time of recording and "L" is output at time of playback.
6	R00	O	LOADING SPEED H	Output pin which sets the speed of the loading motor high. "H" sets the loading speed high.
7	R01	O	LOADING SPEED L	Output pin which sets the speed of the loading motor low. "H" sets the loading speed low.
8	R02	O	NC	–
9	R03	O	NC	–
10	D10	O	NC	–
11	R11	O	NC	–
12	R12	O	NC	–
13	R13	O	NC	–
14	R20	O	PB EQ 120μ/70μ	Output pin which switches the 120μ/70μ time constant of the playback EQ. "L" is output at 120μ (NORMAL), and "H" is output at 70μ (CHROME, METAL).
15	R21	O	NORMAL	Pin which outputs "H" at the time of normal tape. ("L" for switch input of each of chrome and metal.)
16	R22	O	METAL	Pin which outputs "H" at the time of metal tape. ("H" for switch input of each of chrome and metal.)
17	R23	O	CHROME	Pin which outputs "H" at the time of chrome tape. ("H" for switch input of each of chrome and metal.)
18	RA0	O	TAPE PULSE IN	Input pin which takes in the reel pulse of the mechanism.
19	V	I	NC	–
20	R30	I	METAL	Input pin which takes in the metal mechanism switch. ("H" is input at the time of metal tape.)
21	R31	I	CHROME	Input pin which takes in the chrome mechanism switch. ("H" is input at the time of metal and chrome tape.)
22	R32/INT0	I	SERIAL SIG. IN	Input pin for serial communications.
23	R33/INT1	I	–	–
24	R50	O	SOL KICK	Output pin which drives the solenoid.
25	R51	O	SOL P	Output pin used to prevent overheating of the solenoid. Output "L" during play and cue/review, and controls the maintenance of the applied voltage.
26	R52	O	CPM CONTROL	Output pin which drives the capstan motor. Outputs "H" when the capstan motor is rotating.
27	R53	O	MOTOR CONT.1	Digit output pin 1 for the control of driver IC (BA6238) which is used for loading and the reel motor.
28	R60	O	MOTOR CONT.3	Digit output pin 3 for the control of driver IC (BA6238) which is used for loading and the reel motor.
29	R61	O	PLAY SPEED	Output pin which outputs "H" at time of play, and controls the speed of the reel motor.
30	R62	O	OSC. CONTROL	Output pin used to control the bias oscillator. Outputs "H" at the time of recording.
31	R63	O	REC MUTE	Output pin which controls the muting of the recording amplifier input. Outputs "H" at times other than recording.
32	Vcc	O	Vcc	Power supply input pin.
33	R40/SCK	O	CLOCK	Clock output pin for the LCD driver IC (LC7583).
34	R41/S1	O	REC LED OUT	REC LED drive pin. "H": lit "L": off
35	R42/S0	O	DATA	Data output pin for the LCD driver IC (LC7583).
36	R43	O	CE	Chip enable output pin for the LCD driver IC (LC7583).
37	R70	O	FORWARD LED OUT	FORWARD LED drive pin. "H": lit "L": off
38	R71	O	REVERSE LED OUT	REVERSE LED drive pin. "H": lit "L": off

CASSETTE DECK SECTION

NO	Pin name	I/O	Signal name	Function
39	R72	O	–	–
40	R73	O	–	–
41	R80	I	R2	Input take-in pin of keys and switches.
42	R81	I	R1	〃
43	R82	I	R0	〃
44	R83	O	NC	–
45	R90	I	R6	Input take-in pin of keys and switches.
46	R91		R5	Input take-in pin of keys and switches.
47	R92		R4	〃
48	R93		R3	〃
49	RESET		RESET	System reset input pin. (Active high)
50	$\overline{\text{TEST}}$	I	$\overline{\text{TEST}}$	Connected to Vcc.
51	OSC1	I	OSC1	Pin used for the system clock oscillation. (4 MHz)
52	OSC2	I	OSC2	〃
53	GND	I	GND	Ground
54	D 0	I	NC	–
55	D 1	O	NC	–
56	D 2	O	NC	–
57	D 3	I	$\overline{\text{MS SIG. IN}}$	Input pin of the between-track detection signal from the between-track detection IC.
58	D 4	O	–	–
59	D 5	O	$\overline{\text{LINE MUTE}}$	Output pin used for muting of the audio signal output. Outputs "H" at the time of PLAY, REC, REC PAUSE, and REC MUTE, and "L" at other times.
60	D 6	I	–	–
61	D 7	O	MOTOR CONT.2	Digit output pin 2 for the control of driver IC (BA6238) which is used for loading and the reel motor.
62	D 8	O	T0	Strobe signal output pin for the key and switch matrix. (Active high)
63	D 9	O	T1	〃
64	D10	O	T2	〃

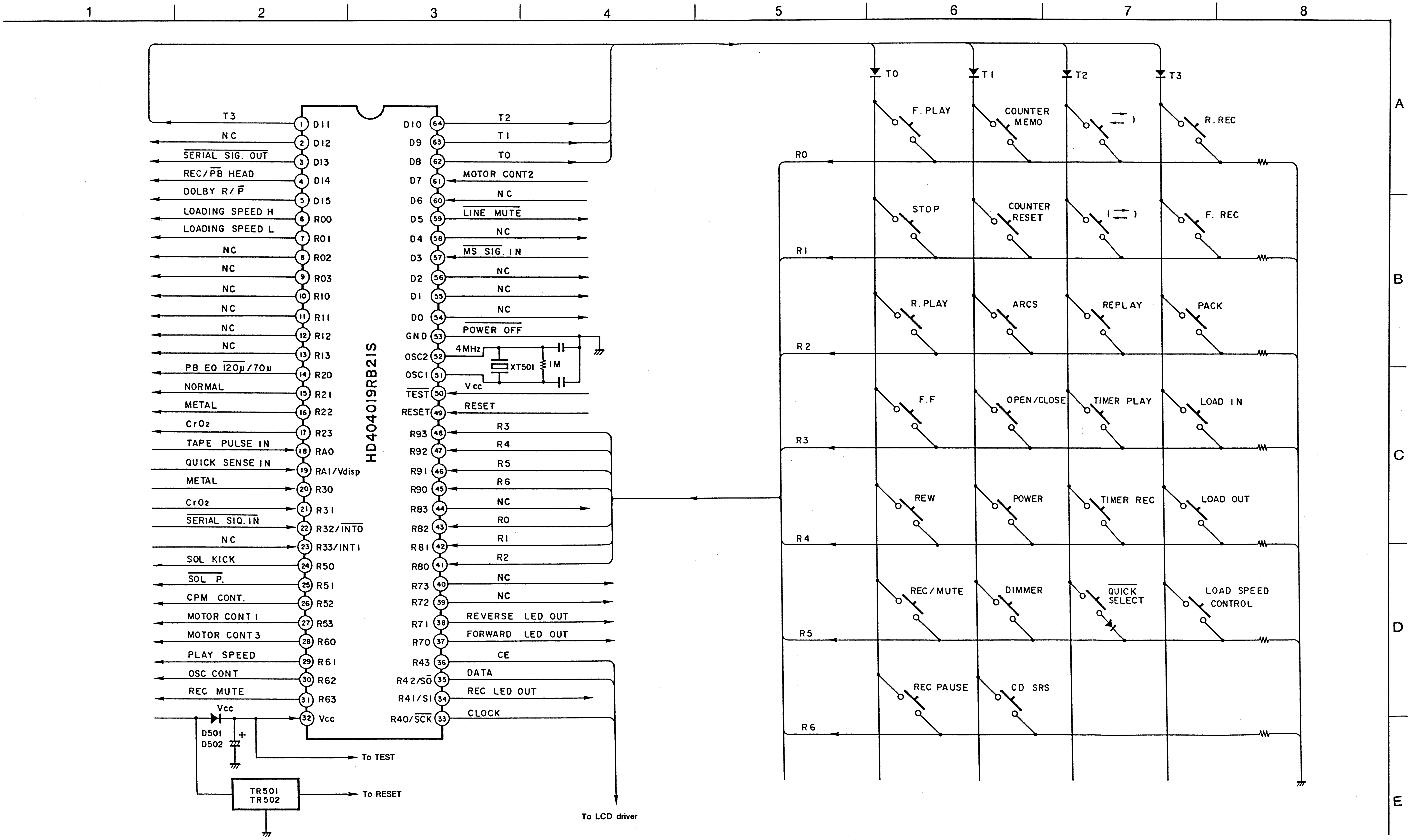
●Description of key inputs

Item	Key name	Functional description
1	F. PLAY	Specifies the PLAY mode of the FORWARD direction. PLAY+REW/FF corresponding to one-touch play, or specifies the CUE/REVIEW mode with FF/REW during the PLAY mode.
2	R. PLAY	Specifies the PLAY mode of the REVERSE direction. Transition of the CUE/REVIEW mode corresponding to one-touch play is the same as F. PLAY.
3	F. F	Specifies that the tape be wound quickly to the right.
4	REW	Specifies that the tape be wound quickly to the left.
5	STOP	Specifies the STOP mode. This key input provides transition to the STOP mode regardless of the current mode.
6	REC/REC MUTE	Specifies the REC, REC PAUSE, and the REC MUTE mode. Key input in the STOP mode results in a transition to the REC PAUSE mode. Key input in the REC PAUSE mode results in a transition to the REC MUTE mode. When switched on at the same time as PLAY, or when there is PLAY key input in the REC PAUSE mode, there will be transition to the REC mode. The record conditions are to be satisfied.
7	OPEN/CLOSE	Specifies the OPEN/CLOSE mode of the cassette tray. This key input provides cyclic switching of the OPEN/CLOSE mode. Toggle operation. When there is key input while the power is off, the power will be switched on and then there will be a transition to the OPEN mode.
8	COUNTER RESET	Resets the counter to "0000".
9	CD SRS	Specifies the CD SRS operation.

●Description of switch inputs

Item	Switch name	Function description
1	(⇄) : REVERSE	Specifies the both sides record/playback mode.
2	(⇄) : CONTINUOUS	Specifies the continuous playback mode. When this switch is input during the REC mode, there will be a transition to the both sides recording mode.
3	F. REC	Input from this switch leads to the judgment that recording in the forward direction is possible.
4	R. REC	Input from this switch leads to the judgment that recording in the reverse direction is possible.
5	PACK	Input from this switch leads to the judgment that the there is a cassette loaded.
6	LOAD IN	Input from this switch leads to the judgment that the cassette tray CLOSE operation is completed.
7	LOAD OUT	Input from this switch leads to the judgment that the cassette tray OPEN operation is completed.
8	LOAD SPEED DOWN	Input from this switch leads to the specification of LOADING SPEED DOWN for the cassette tray.

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

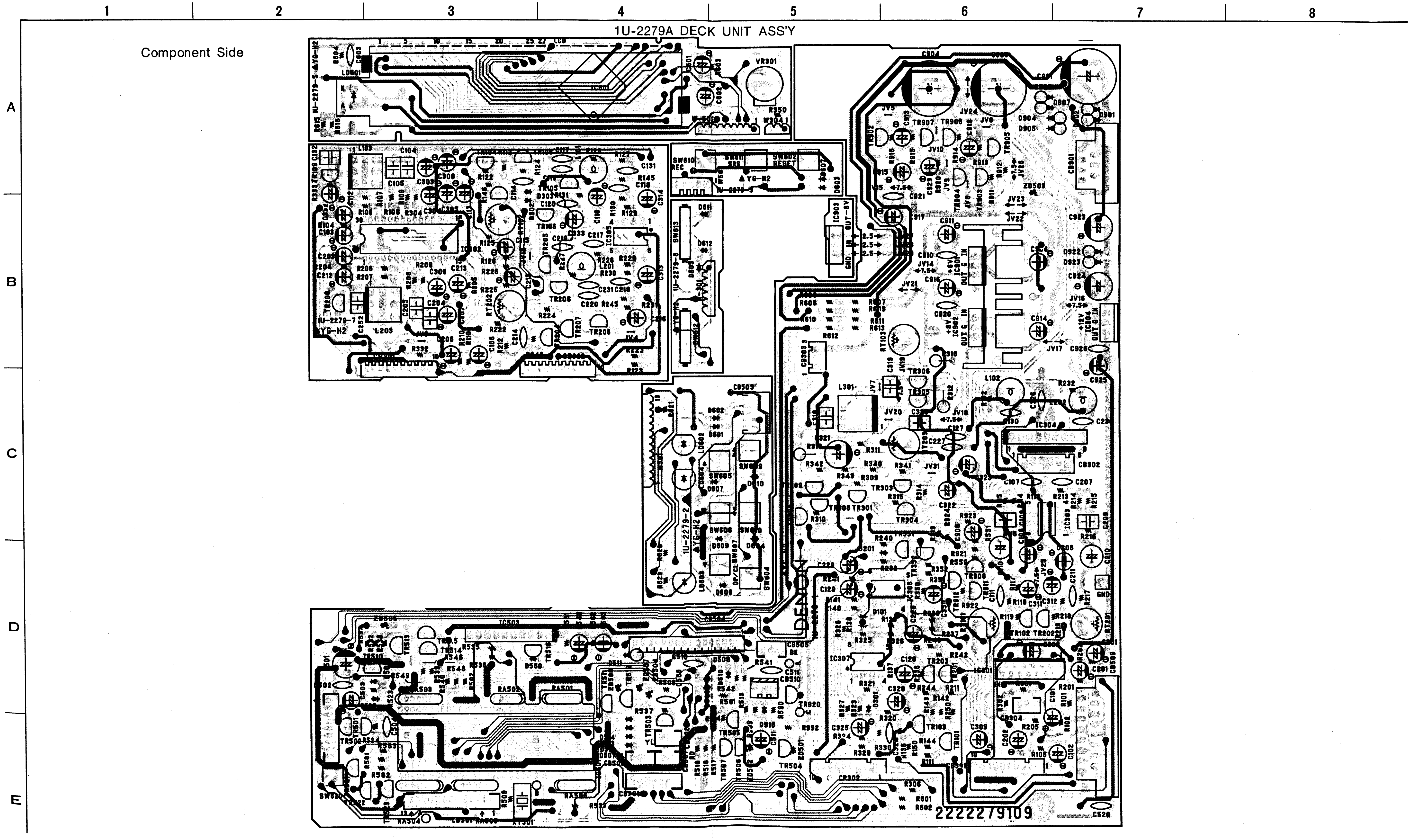

1
2
3
4
5
6
7
8
A
B
C
D
E
HD404019RB21S
T3 ① D11
NC ② D12
SERIAL SIG. OUT ③ D13
REC/PB HEAD ④ D14
DOLBY R/P ⑤ D15
LOADING SPEED H ⑥ R00
LOADING SPEED L ⑦ R01
NC ⑧ R02
NC ⑨ R03
NC ⑩ R10
NC ⑪ R11
NC ⑫ R12
NC ⑬ R13
PB EQ 120μ/70μ ⑭ R20
NORMAL ⑮ R21
METAL ⑯ R22
CrO2 ⑰ R23
TAPE PULSE IN ⑱ RA0
QUICK SENSE IN ⑲ RA1/Vdisp
METAL ⑳ R30
CrO2 ㉑ R31
SERIAL SIG. IN ㉒ R32/INT0
NC ㉓ R33/INT1
SOL KICK ㉔ R50
SOL P. ㉕ R51
CPM CONT. ㉖ R52
MOTOR CONT 1 ㉗ R53
MOTOR CONT 3 ㉘ R60
PLAY SPEED ㉙ R61
OSC CONT ㉚ R62
REC MUTE ㉛ R63
Vcc ㉜ Vcc
D10 (64) T2
D9 (63) T1
D8 (62) T0
D7 (61) MOTOR CONT2
D6 (60) NC
D5 (59) LINE MUTE
D4 (58) NC
D3 (57) MS SIG. IN
D2 (56) NC
D1 (55) NC
D0 (54) NC
GND (53) POWER OFF
OSC2 (52) 4MHz
OSC1 (51) Vcc
TEST (50)
RESET (49) RESET
R93 (48) R3
R92 (47) R4
R91 (46) R5
R90 (45) R6
R83 (44) NC
R82 (43) R0
R81 (42) R1
R80 (41) R2
R73 (40) NC
R72 (39) NC
R71 (38) REVERSE LED OUT
R70 (37) FORWARD LED OUT
R43 (36) CE
R42/SO (35) DATA
R41/SI (34) REC LED OUT
R40/SCK (33) CLOCK
XT501
1M
D501
D502
TR501
TR502
To TEST
To RESET
To LCD driver
T0
T1
T2
T3
R0
R1
R2
R3
R4
R5
R6
F.PLAY
COUNTER MEMO
R.REC
STOP
COUNTER RESET
F. REC
R.PLAY
ARCS
REPLAY
PACK
F.F
OPEN/CLOSE
TIMER PLAY
LOAD IN
REW
POWER
TIMER REC
LOAD OUT
REC/MUTE
DIMMER
QUICK SELECT
LOAD SPEED CONTROL
REC PAUSE
CD SRS

CASSETTE DECK SECTION

PRINTED WIRING BOARD

1U-2279A DECK UNIT ASS'Y

Component Side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A
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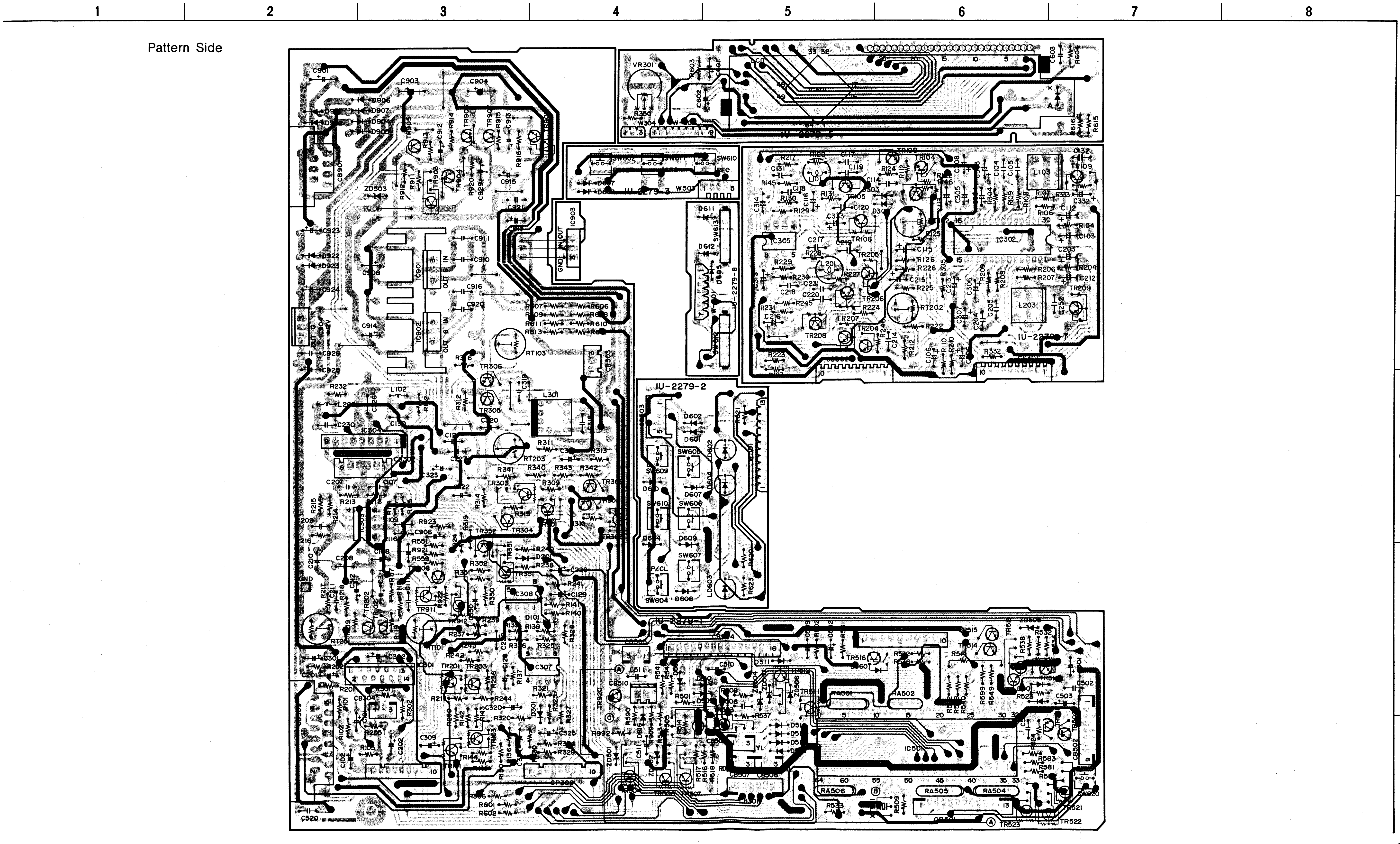
C
D
E
1U-2279-5
1U-2279-7
1U-2279-8
1U-2279-2
1U-2279-3
LCD
VR301
IC801
IC302
IC303
IC304
IC503
IC901
IC902
IC904
L301
REC
RESET
OUT 6V
GND
DENON
2222279109



Pattern Side

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A
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C
D
E
IU-2279-2
IU-2279-3
IU-2279-8
IU-2279-1
IC901
IC902
IC302
IC304
IC305
IC501
L301
L103
L203
RT103
RT203
RT202
VR301
SW602
SW611
SW610
REC
SW604
SW605
SW606
SW607
SW609
P/CL
GND
RA501
RA502
RA504
RA505
RA506
TR522
TR523

CASSETTE DECK SECTION

NOTES ON THE PARTS TABLE

NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/6 W, 1/4W Type in the P. W. Board parts list.
- Parts marked with this symbol △ ▨ have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.
- Refer to the following table for the codes of the resistors and capacitors appearing on the parts list.

- **Resistors**

Ex.: RN 14K 2E 182 G FR

RN	14K	2E	182	G	FR
Type	Shape and performance	Power	Resistance	Allowable error	Others

Type	Power	Allowable error	Others
RD : Carbon RC : Fixed RS : Metallic film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse resistor F : Lead wire forming

★ Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm

2 — Indicates number of zeros after effective number

18 — 2-digit effective number, decimal point indicated by R.

- Units: ohm

- **Capacitors**

Ex.: CE 04W 1H 2R2 M BP

CE	04W	1H	2R2	M	BP
Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others

Type	Dielectric strength	Allowable error	Others
CE : Aluminum foil electrolyte CA : Aluminum solid electrolyte CS : Tantalum electrolyte CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF - : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

★ Capacity

2 R 2 ⇨ 2.2 μF

2 — 1-digit effective number, decimal point indicated by R.

2R — 2-digit effective number, decimal point indicated by R.

- Units: μF, (for P, pF (μμF)
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

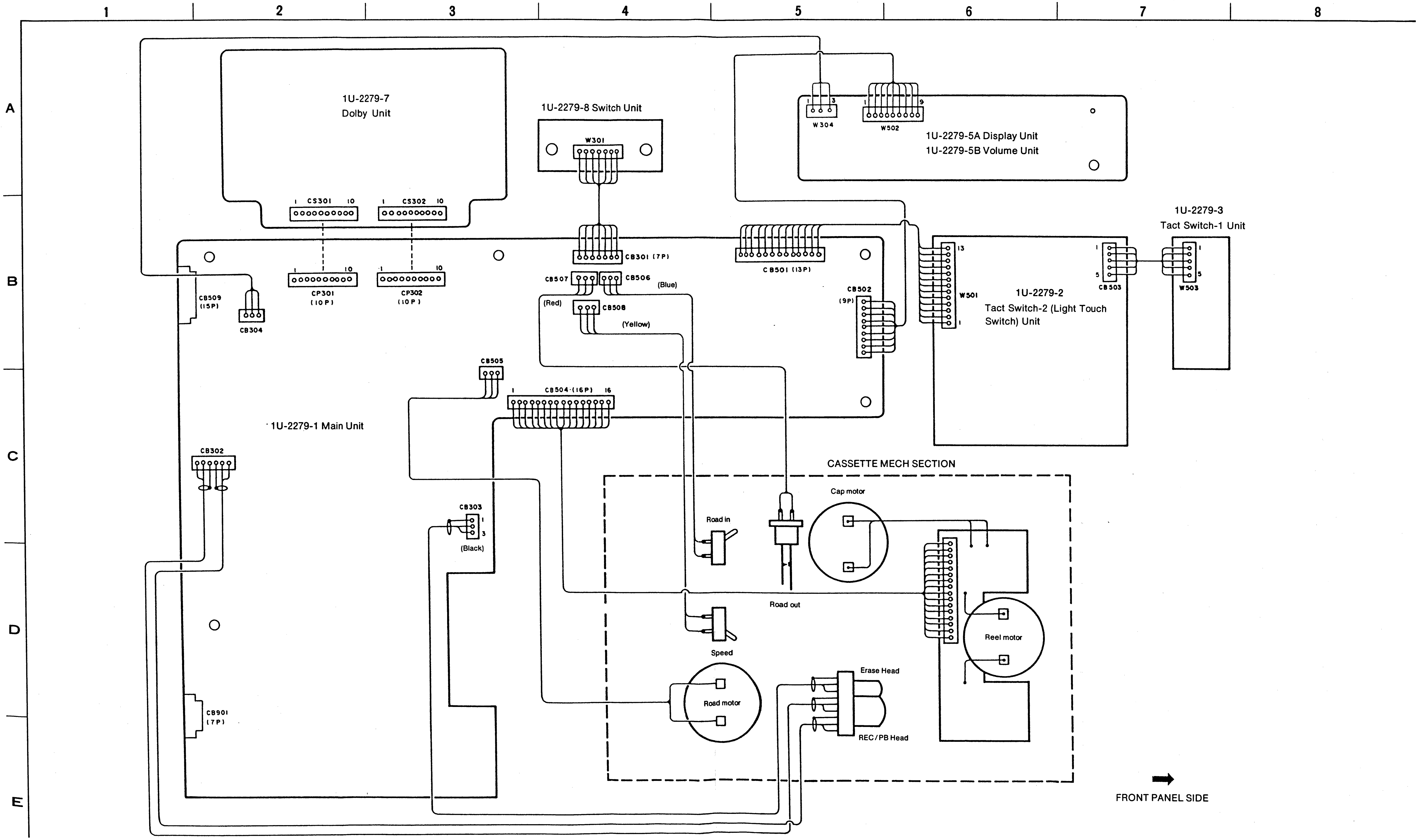
1U-2279A DECK UNIT PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC301	263 0761 005	IC M51131L	
IC302	263 0715 006	IC CXA1330S	
IC303	263 0317 006	IC M5220P	
IC304	263 0590 001	IC μPC1330HA	
IC305	263 0257 001	IC M5218P	
IC307,308	263 0565 007	IC BA15218	
IC501	262 1463 105	IC HD404019RB21S	μ-com
IC503	262 1362 002	IC BA6238A	
IC601	262 1363 001	IC LC7583	
IC901	263 0586 002	IC NJM78M06FA	Regulator
IC902	263 0510 007	IC NJM78M08FA	Regulator
IC903	263 0511 006	IC NJM79M08FA	Regulator
IC904	263 0571 004	IC NJM78M12FA	Regulator
TR101,201	269 0072 909	Transistor DTC323TS	built in Resistor
TR102,202	273 0178 925	Transistor 2SC1740 (R/S)	
TR103,203	269 0072 909	Transistor DTC323TS	built in Resistor
TR104,204	273 0245 027	Transistor 2SC2603 (E/F)	built in Resistor
TR105~108 205~208	269 0074 907	Transistor DTC114TS (10k)	built in Resistor
TR109,209	269 0072 909	Transistor DTC323TS (R/S)	built in Resistor
TR301,302	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR303	271 0167 901	Transistor 2SA1115 (F)	
TR304	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR305,306	273 0245 900	Transistor 2SC2603 (E/F)	
TR308,309	271 0167 901	Transistor 2SA1115 (F)	
TR351	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR352	269 0093 904	Transistor DTA144ES (47k-47k)	built in Resistor
TR501,502	271 0183 927	Transistor 2SA933 (R/S)	
TR503~507	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR510~512	269 0015 908	Transistor DTC124XS (22k-47k)	built in Resistor
TR513	274 0111 008	Transistor 2SD1111	
TR514,515	274 0036 905	Transistor 2SD468 (C)	
TR521~523	269 0015 908	Transistor DTC124XS (22k-47k)	built in Resistor
TR902	274 0111 008	Transistor 2SD1111	
TR903	269 0040 902	Transistor DTC144ES (47k-47k)	built in Resistor
TR904	273 0178 925	Transistor 2SC1740 (R/S)	
TR905	272 0025 004	Transistor 2SB562 (C)	
TR906	273 0178 925	Transistor 2SC1740 (R/S)	
TR907	271 0183 927	Transistor 2SA933 (R/S)	
TR908	273 0245 900	Transistor 2SC2603 (E/F)	
TR911	269 0020 906	Transistor DTC114ES (10k-10k)	built in Resistor
TR912	269 0046 906	Transistor DTA114ES (10k-10k)	built in Resistor
TR920	273 0179 925	Transistor 2SC1740 (R/S)	
D101	276 0417 902	Diode 1SS270	
D201	276 0417 902	Diode 1SS270	
D301~303	276 0417 902	Diode 1SS270	
D501,502	276 0417 902	Diode 1SS270	
D507	276 0503 900	Diode 1SS198	
D508~510	276 0417 902	Diode 1SS270	
D511	276 0553 905	Diode 1SR35-200A	
D512~514	276 0417 902	Diode 1SS270	
D601,602	276 0503 900	Diode 1SS198	
D603,604	276 0417 902	Diode 1SS270	
D605	276 0503 900	Diode 1SS198	
D606~612	276 0417 902	Diode 1SS270	
D901,902	276 0553 905	Diode 1SR35-200A	
D904~907	276 0550 908	Diode 1SR35-200A	
D916	276 0417 902	Diode 1SS270	
D922,923	276 0553 905	Diode 1SR35-200A	
ZD501~503	276 0463 914	Zener Diode HZS6C-2	6V
ZD504	276 0465 912	Zener Diode HZS7B-2	7V
ZD505	276 0457 904	Zener Diode HZS4C-1	4V
ZD506	276 0455 906	Zener Diode HZS4A-1	4V
ZD507	276 0451 900	Zener Diode HZS2C-1	2V
LD601	393 9493 002	LED Ass'y	LED
LD602,603	393 9483 902	LED SLR-34MC70F120G	LED Green
LD604	393 9484 901	LED SLR-34VC70F120R	LED Red
LC601	393 4114 001	LCD Ass'y	LCD
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
△R312[illegible]	[illegible] 2387 966	Carbon Film 6.2 ohm, 1/4W (N.B)	RD14B2E6R2JNBS
△R313	[illegible] 2315 912	Fusible 10 ohm, 1/4W	RD14B2E100FRS
△R316	[illegible] 2315 912	Fusible 10 ohm, 1/4W	RD14B2E100FRS
△R535	244 2054 007	Metal Oxide Film 10 ohm, 2W	RS14B3D100JNB
△R546	244 0083 012	Metal Oxide Film 56 ohm, 2W	RS14B3D560JNBF
VR301	211 0708 009	Variable Resistor 100k ohm	V09P08FB104
RA501	246 2041 016	Resistor Array 10k ohm×5	RK99==103KP5
RA502	246 1073 000	Resistor Array 10k ohm×4	RK99==103JP4 (S)
RA504,505	246 2073 013	Resistor Array 10k ohm×6	RK99==103JP6 (S)
RA506	246 2041 016	Resistor Array 10k ohm×5	RK99==103KP5
RT101,201	211 6077 983	Semi Fixed Resistor 47k ohm	
RT102,202	211 6077 954	Semi Fixed Resistor 22k ohm	
RT103,203	211 6077 983	Semi Fixed Resistor 47k ohm	
CAPACITORS GROUP			
C101,201, 102,202	254 4258 002	Electrolytic 4.7 μF/35V	CE04W1V4R7M
C103,203	254 4260 058	Electrolytic 2.2 μF/50V	CE04W1H2R2M
C104,204, 105,205	255 1120 042	Film 0.0022 μF/50V	CQ93M1H222J
C106,206	254 4260 058	Electrolytic 2.2 μF/50V	CE04W1H2R2M
C107,207	253 3645 008	Ceramic 560pF/50V	CC45SL1H561J
C108,208	254 4252 024	Electrolytic 47 μF/10V	CE04W1A470M
C109,209	255 1120 097	Film 0.0056 μF/50V	CQ93M1H562J
C110,210	254 3056 014	Electrolytic 1 μF/50V (Bipole)	CE04W1H010MBP
C111,211	253 9030 073	BC Ceramic 0.015 μF/25V	CK45=1E153K
C112,212	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M
C113,213	254 4260 058	Electrolytic 2.2 μF/50V	CE04W1H2R2M
C114,214	253 9030 044	BC Ceramic 4700pF/25V	CK45=1E472K
C115,215	254 4258 002	Electrolytic 4.7 μF/35V	CE04W1V4R7M
C116,216	254 4252 024	Electrolytic 47 μF/10V	CE04W1A470M
C117,217	253 9030 357	BC Ceramic 6800pF/25V	CK45=1E682K
C118,218	256 1034 063	Metalized 0.082 μF/50V	CF93A1H823J
C119,219	253 9031 072	BC Ceramic 3900pF/25V	CK45=1E392K
C120,220	253 9030 015	BC Ceramic 1500pF/25V	CK45=1E152K
C127,227	253 1179 042	Ceramic 220pF/50V	CK45B1H221K (DD-3)
C128,228	254 4260 058	Electrolytic 2.2 μF/50V	CE04W1H2R2M
C129,229	254 4260 061	Electrolytic 3.3 μF/50V	CE04W1H3R3M
C130,230	253 1179 026	Ceramic 150pF/50V	CK45B1H151K (DD-3)
C131,231	253 9030 002	BC Ceramic 1000pF/25V	CK45=1E102K
C132,232	255 1120 055	Film 0.0027 μF/50V	CQ93M1H272J
C301	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C302	254 4254 019	Electrolytic 22 μF/16V	CE04W1C220M
C303	254 4278 040	Electrolytic 0.56 μF/50V	CE04W1HR56M
C304	254 4260 029	Electrolytic 0.33 μF/50V	CE04W1HR33M
C305	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C306	254 4278 040	Electrolytic 0.56 μF/50V	CE04W1HR56M
C307	254 4260 029	Electrolytic 0.33 μF/50V	CE04W1HR33M
C308	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C309	254 4256 017	Electrolytic 22 μF/50V	CE04W1E220M
C311~314	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C318	255 4079 048	Film 0.01 μF/100V	CQ93P2A103J
C319	255 1121 007	Film 0.022 μF/50V	CQ93M1H223J
C320	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C320	255 1120 084	Film 0.0047 μF/50V	CQ93M1H472J
C321	254 4256 059	Electrolytic 220 μF/25V	CE04W1E221M
C322	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C323	254 4254 048	Electrolytic 100 μF/16V	CE04W1C101M
C324	253 9030 031	BC Ceramic 3300pF/25V	CK45=1E332K

Ref. No.	Part No.	Part Name	Remarks	
C325	254 4252 008	Electrolytic 22μF/10V	CE04W1A220M	
C326	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)	
C332	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C333	254 4260 045	Electrolytic 10μF/50V	CE04W1H010M	
C501	254 4252 037	Electrolytic 100μF/10V	CE04W1A101M	
C502	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)	
C503	254 4260 032	Electrolytic 0.47μF/50V	CE04W1HR47M	
C504	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104K	
C506	253 1181 001	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)	
C510,511	253 9030 086	BC Ceramic 0.022μF/25V	CK45=1E223K	
C511	254 4256 017	Electrolytic 22μF/25V	CE04W1E220M	
C520	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104Z	
C601	254 4305 065	Electrolytic 1μF/50V	CE04W1H010M (SRE)	
C602	254 4299 003	Electrolytic 10μF/16V	CE04W1C100M (SRE)	
C603	253 9030 002	BC Ceramic 1000pF/25V	CK45=1E102K	
C901	254 4257 003	Electrolytic 3300μF/25V	CE04W1E332MC	
C903	254 4256 091	Electrolytic 2200μF/25V	CE04W1E222MC	
C904	254 4257 003	Electrolytic 3300μF/25V	CE04W1E332MC	
C906	254 4256 059	Electrolytic 220μF/25V	CE04W1E221M	
C908	254 4256 004	Electrolytic 10μF/25V	CE04W1E100M	
C910	253 9031 014	BC Ceramic 0.068μF/25V	CK45=1E683K	
C911	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C912,913	254 4260 032	Electrolytic 0.47μF/50V	CE04W1HR47M	
C914,915	254 4256 004	Electrolytic 10μF/25V	CE04W1E100M	
C916,917	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C920,921	253 9031 014	BC Ceramic 0.068μF/25V	CK45=1E683K	
C923	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C923,924	254 4258 057	Electrolytic 100μF/35V	CE04W1V101M	
C925	254 4254 006	Electrolytic 10μF/16V	CE04W1C100M	
C926	253 9031 014	BC Ceramic 0.068μF/25V	CK45=1E683K	
C927	253 9036 006	BC Ceramic 0.1μF/25V	CK45=1E104Z	
OTHERS PARTS GROUP				**Q'ty**
	—	(P.W. Board)		(1)
L101,201	235 0020 916	Inductor 822J		2
L102,103	235 0020 945	Inductor 153J		2
	212 5606 905	Tact Switch		10
L103,203	232 0109 003	MPX Filter		2
L301	232 0164 006	105kHz OSC Coil		1
SW612	212 1046 006	Slide Switch (2-3)		1
SW613	212 1047 005	Slide Switch (1-3)		1
XT501	399 9018 003	Ceramic Vibrator	CST4.00MGW	1
	441 9038 009	LCD Holder		1
	447 0373 011	Heat Sink		1
	470 0012 022	Pan Screw 3×12 Washer With Washer Spring		2
CB301	205 0343 074	7P Connector Base (KR-PH)		1
CB302	205 0206 069	6P XH Connector Base		1
CB303	205 0206 030	3P XH Connector Base		1
CB304	205 0343 032	3P Connector Base (KR-PH)		1
CB501	205 0375 039	13P Connector Base (KR-PH)		1
CB502	205 0343 090	9P Connector Base (KR-PH)		1
CB503	205 0355 059	5P KR Connector Base (L)		1
CB901	204 2429 003	7P System Socket		1
CB509	204 8284 022	15P System Socket		1
CB504	205 0633 069	16P Trap Connector Base		1
CB505	205 0323 036	3P Connector Base (BLK)	Black	1
CB506	205 0322 037	3P Connector Base (BLUE)	Blue	1
CB507	205 0321 038	3P Connector Base (RED)	Red	1
CB508	205 0543 036	3P Connector Base (YEL)	Yellow	1
CS301,302	205 0536 056	10P Connector Socket		2
CP301,302	205 0535 057	10P Connector Base		1
W301	204 2452 025	7P KR-DA Connector Cord		1
W502	204 2269 014	9P KR-DA Connector Cord		1
W501	204 6269 023	13P KR-DA Connector Cord		1
W304	203 4591 020	3P KR-DA Connector Cord		1
W503	203 8017 018	5P KR-DS Connector Cord		1
W001	203 0319 044	1P SI Connector Ass'y		1

CASSETTE DECK SECTION

WIRING DIAGRAM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A
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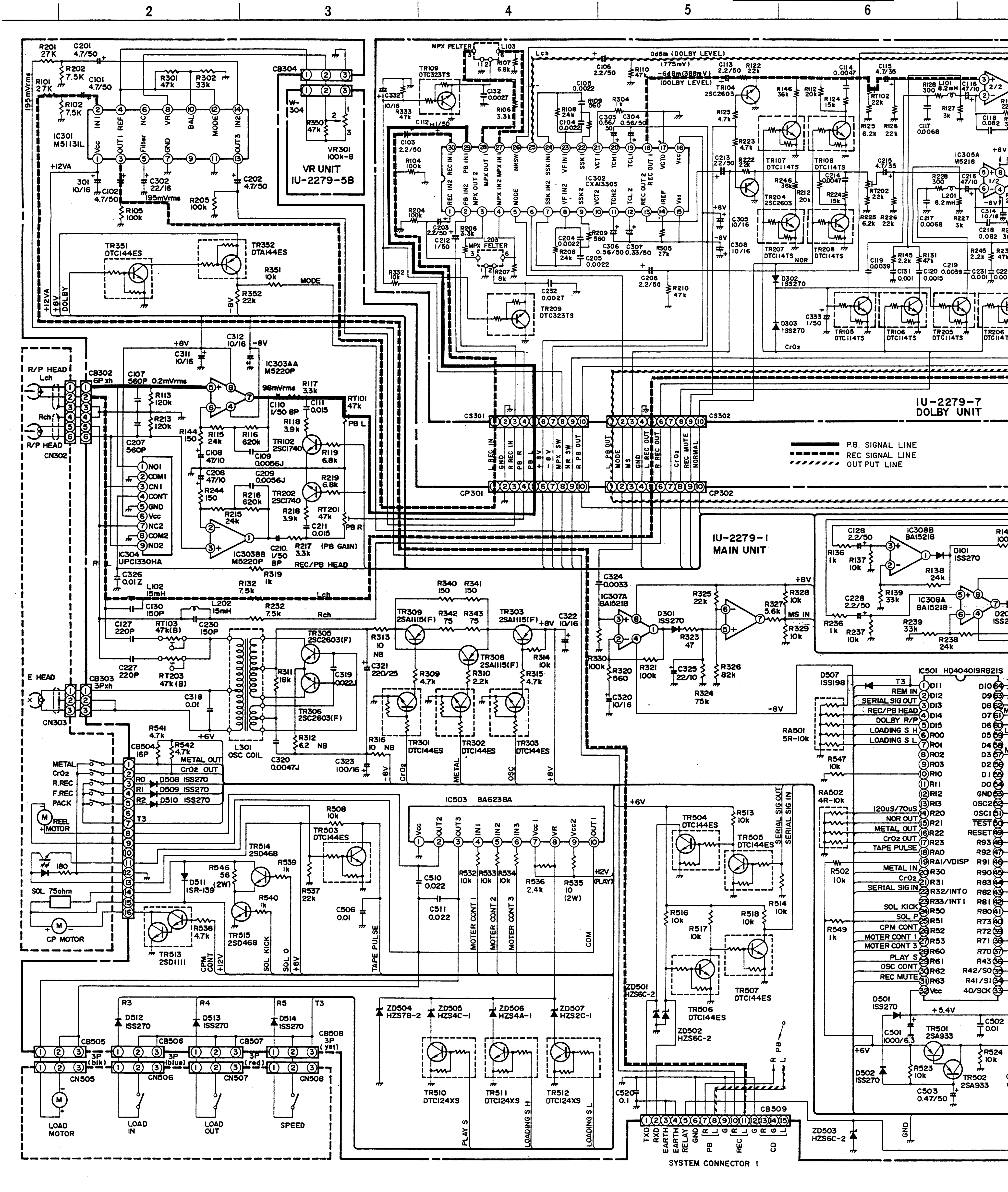
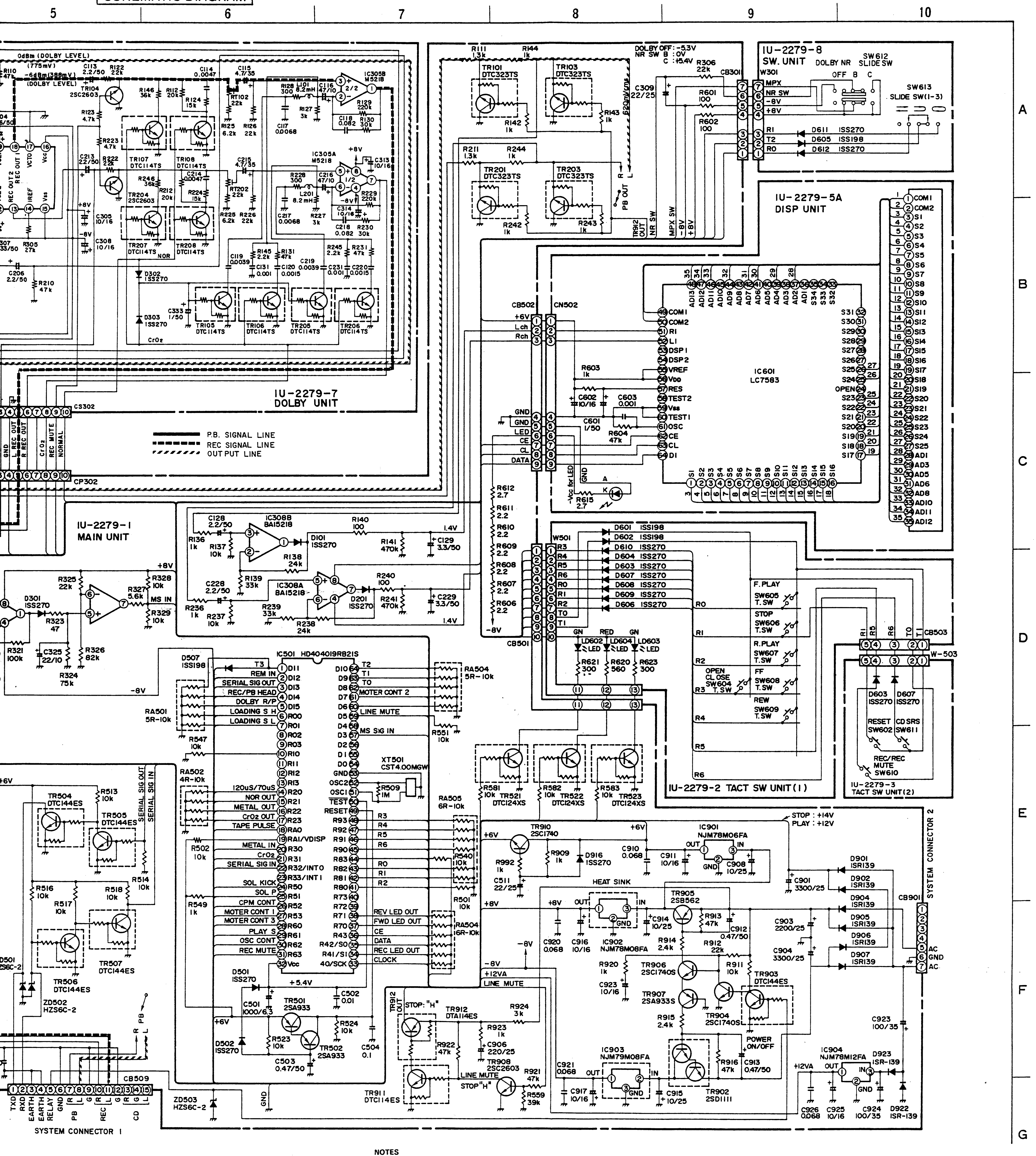
C
D
E
1U-2279-7
Dolby Unit
1 CS301 10
1 CS302 10
1U-2279-8 Switch Unit
W301
1 3
W304
1 9
W502
1U-2279-5A Display Unit
1U-2279-5B Volume Unit
1U-2279-3
Tact Switch-1 Unit
1 5
W503
1 5
CB503
13
W501
1
1U-2279-2
Tact Switch-2 (Light Touch Switch) Unit
CB301 (7P)
CB501 (13P)
CB502 (9P)
CB507
CB506
(Blue)
(Red)
CB508
(Yellow)
CB509 (15P)
CB304
1 10
CP301 (10P)
1 10
CP302 (10P)
CB505
1 CB504 (16P) 16
1U-2279-1 Main Unit
CB302
CB303
1
3
(Black)
CB901 (7P)
CASSETTE MECH SECTION
Cap motor
Road in
Road out
Speed
Road motor
Erase Head
REC/PB Head
Reel motor
FRONT PANEL SIDE

SCHEMATIC DIAGRAM


2
3
4
5
6
VR UNIT
IU-2279-5B
IU-2279-7
DOLBY UNIT
IU-2279-1
MAIN UNIT
P.B. SIGNAL LINE
REC SIGNAL LINE
OUTPUT LINE
IC301 M5113IL
IC302 CXA1330S
IC303AA M5220P
IC303BB M5220P
IC304 UPC1330HA
IC305A M5218
IC307A BA15218
IC308A BA15218
IC308B BA15218
IC503 BA6238A
IC501 HD404019RB21S
MPX FELTER
0dBm (DOLBY LEVEL)
R/P HEAD
Lch
Rch
CN302
CB302
E HEAD
CB303
CN303
CB304
CS301
CS302
CP301
CP302
CB504
L301 OSC COIL
METAL
CrO2
R.REC
F.REC
PACK
REEL MOTOR
SOL 75ohm
CP MOTOR
CB505
CB506
CB507
CB508
CN505
CN506
CN507
CN508
LOAD MOTOR
LOAD IN
LOAD OUT
SPEED
CB509
SYSTEM CONNECTOR 1
REC/PB HEAD
PB GAIN
MS IN
PLAY S
LOADING S H
LOADING S L
TAPE PULSE
MOTER CONT 1
MOTER CONT 2
MOTER CONT 3
SOL KICK
SOL 0
SERIAL SIG OUT
SERIAL SIG IN

SCHEMATIC DIAGRAM


5
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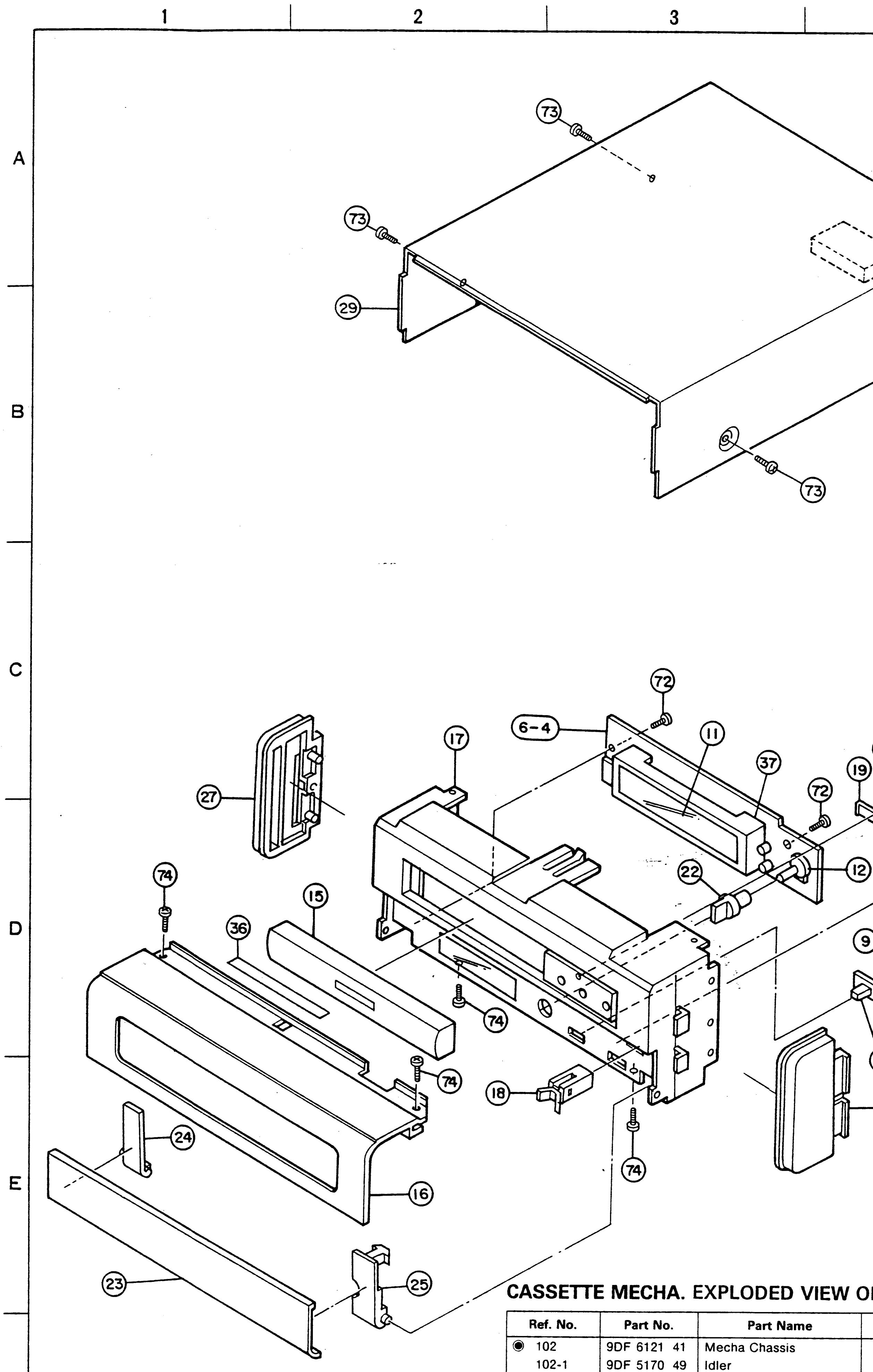
10
A
B
C
D
E
F
G
0dBm (DOLBY LEVEL) (775mV)
-6dBm(388mV) (DOLBY LEVEL)
IU-2279-7 DOLBY UNIT
P.B. SIGNAL LINE
REC SIGNAL LINE
OUTPUT LINE
IU-2279-1 MAIN UNIT
IU-2279-8 SW. UNIT
DOLBY NR SW612 SLIDE SW
SW613 SLIDE SW(1-3)
DOLBY OFF: -5.3V NR SW B: 0V C: +5.4V
IU-2279-5A DISP UNIT
IC601 LC7583
IC501 HD404019RB21S
IC305A M5218
IC305B M5218
IC308A BA15218
IC308B BA15218
XT501 CST4.00MGW
IU-2279-2 TACT SW UNIT(1)
IU-2279-3 TACT SW UNIT(2)
F.PLAY SW605 T.SW
STOP SW606 T.SW
R.PLAY SW607 T.SW
OPEN CLOSE SW604 T.SW
FF SW608 T.SW
REW SW609 T.SW
RESET SW602
CD SRS SW611
REC/REC MUTE SW610
STOP: +14V PLAY: +12V
IC901 NJM78M06FA
IC902 NJM78M08FA
IC903 NJM79M08FA
IC904 NJM78M12FA
HEAT SINK
POWER ON/OFF
LINE MUTE
SYSTEM CONNECTOR 1
SYSTEM CONNECTOR 2
CB901
CB509
CB502
CN502
CB501
CB503
W-503
CB301
CS302
CP302

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

CASSETTE DECK SECTION

EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	411 1099 100	Chassis		1
2	105 0972 336	Rear Panel		1
3	104 0253 007	Foot Ass'y		4
4	415 9016 019	P.C.B Holder		2
★ 5	445 0033 005	Wire Clamp Band		6
◉ 6	1U- 2279 A	Deck Unit Ass'y		1^S
6-1	—	Main Unit		(1)
6-2	—	Tact Switch (2) Unit		(1)
6-3	—	Tact Switch (1) Unit		(1)
6-4	—	LCD Unit		(1)
6-5	—	Display, volume Unit		(1)
6-6	—	—		
6-7	—	Dolby Unit		(1)
6-8	—	Switch Unit		(1)
7	254 4257 702	Chemicon 3300µ/25V	C901,904	2
8	254 4256 790	Chemicon 2200µ/25V	C903	1
9	212 1046 006	Slide Switch (2-3)	SW612	1
10	212 1047 005	Slide Switch (1-3)	SW613	1
11	393 4114 001	LCD Ass'y		1
12	211 0708 009	Variable Resistor 100k ohm	VR301	1
13	103 1470 103	Mech. Holder (B)		1
◉ 14	HM101	Cassette Mech Unit		1
15	146 1292 210	Loader Panel (D) Ass'y		1
◉ 16	144 2134 025	Front Panel		1
◉ 17	103 1471 322	Inner Panel Ass'y		1
18	435 0113 009	Latch (Y3Y18)		1
19	143 0743 101	Lens		1
20	113 1458 106	Control Button		1
21	113 9050 124	Select Button		2
22	112 0689 106	Rec Level Knob		1
23	144 2133 107	Trap Door		1
◉ 24	401 0126 200	Door Hinge (L)		1
◉ 25	401 0127 209	Door Hinge (R)		1
◉ 26	445 0048 003	Cord Holder (ℓ=76)		1
◉ 27	146 1279 107	Side Panel (L) Ass'y		1
◉ 28	146 1281 108	Side Panel (R) Ass'y		1
◉ 29	102 0478 103	Top Cover		1
30	122 0146 057	Himeron Sheet	T0.5×10×15 Put on D. Unit	1
31	513 1642 002	No. Sheet		1
32	204 2429 003	7P System Socket		1
33	204 8284 022	15P System Socket		1
34	461 0577 055	Rubber Sheet	T10×15×25	1
★ 35	513 1863 014	Rating Sheet		1
36	122 0146 002	Himeron Sheet	Put on F/Panel	1
37	441 9038 009	LCD Holder		1
★ 38	461 9012 029	Cushion		1
★ 39	415 0615 008	Insulating Sheet		1
SCREWS				Q'ty
71	473 7002 034	Tapping Screw (S) 3×6	Black	10
72	473 7500 015	Tapping Screw (P) 3×8		9
73	473 7007 000	Tapping Screw (S) 4×8	Black	4
74	473 7002 021	Tapping Screw (S) 3×8	Black	11
75	473 7501 001	Tapping Screw (P) 3×10	Black	1
76	473 7500 044	Tapping Screw (P) 3×8	Black	2
77	473 7015 018	Tapping Screw (S) 3×8		1
78	425 0232 006	Adjust Washer	t0.3 Black	2
79	425 0232 019	Adjust Washer	t0.5 Clear	2
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				Q'ty
◉ 101	505 0154 082	Cabinet Cover	600×600	1
102	—	—		
◉ 103	503 9216 103	Cushion		2
104	501 1560 000	Sleeve Carton		1
◉ 105	513 1389 006	Control Card Base		1
◉ 106	513 1349 004	Thermal Carbon Film		1



CASSETTE MECHA. EXPLODED VIEW O

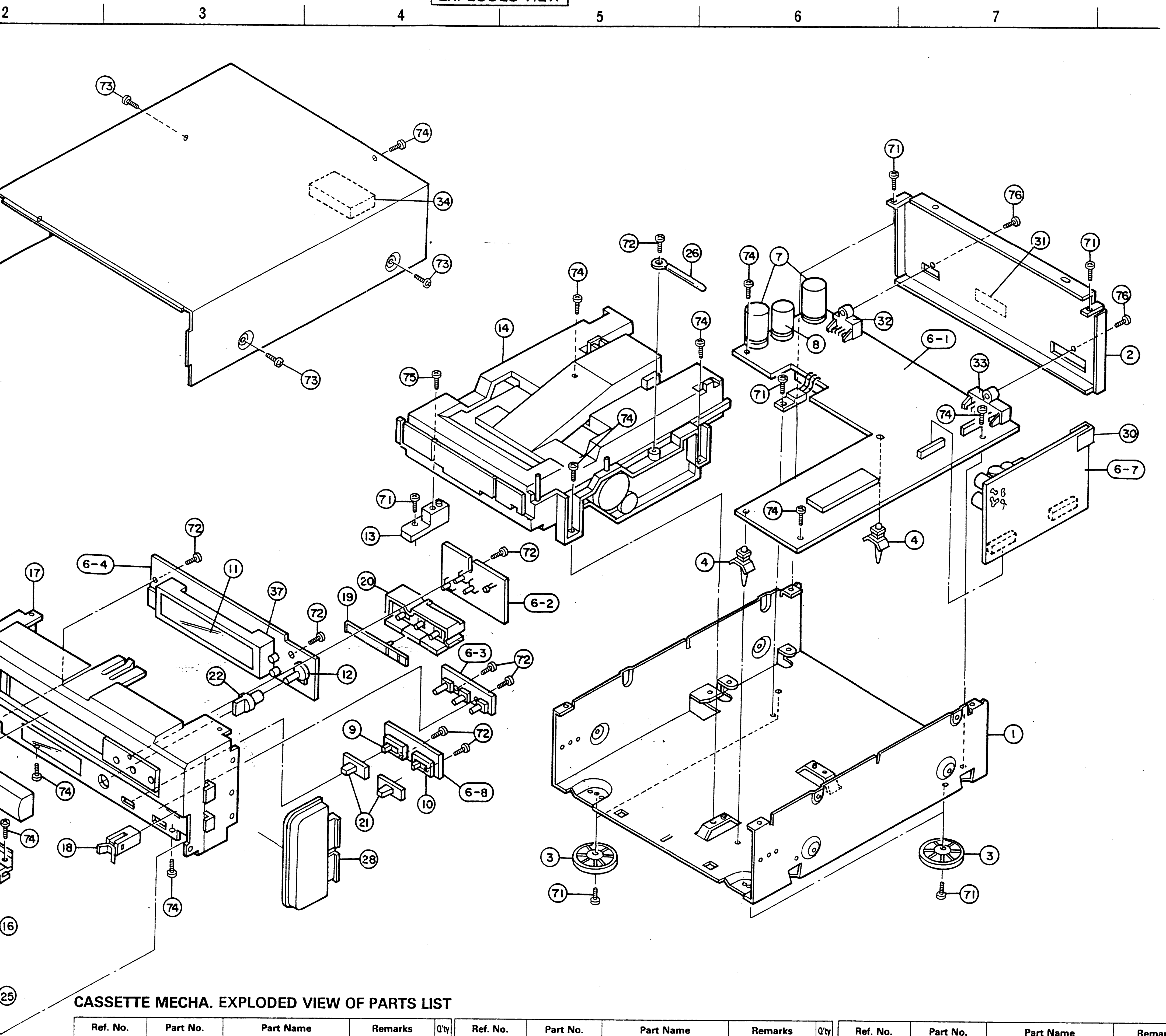
Ref. No.	Part No.	Part Name
◉ 102	9DF 6121 41	Mecha Chassis
102-1	9DF 5170 49	Idler
102-2	9DF 5642 80	Reel Motor
102-4	9DF 6230 37	Reel Base BLK
102-5	9DF 6231 27	Reel Base BLK
102-7	9DF G156 11A	2.6×6.4 ZN Screw
102-8	9DF J111 17	1.7×0.25 Washer
102-11	9DU J12V 11	2.1×0.25 Poly Washer
103	9DF 5136 05	Head Blk
103-1	9DA Z14T 00	SPI-320AB
103-3	9DF 7690 16	Head Housing
103-3-9	9DF C47E 12	Head Adjust Spring
103-3-10	9DU G13A 11	1.7×5.2 ZNT Screw
103-8	9DF K20P 15	Rotate Spring
103-9	9DF K26N 14	HB Spring
103-11	9DU G19D 11	TT2.0×5 ZN Screw
◉ 103-17	9DWH57S 00	Wire Connector (E)
◉ 103-18	9DWH57R 02	Wire Connector (R/P)
◉ 103-21	9DWH47U 01A	Wire Connector (Q,S)
104	9DF 525S 270	Main Motor Ass'y

NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

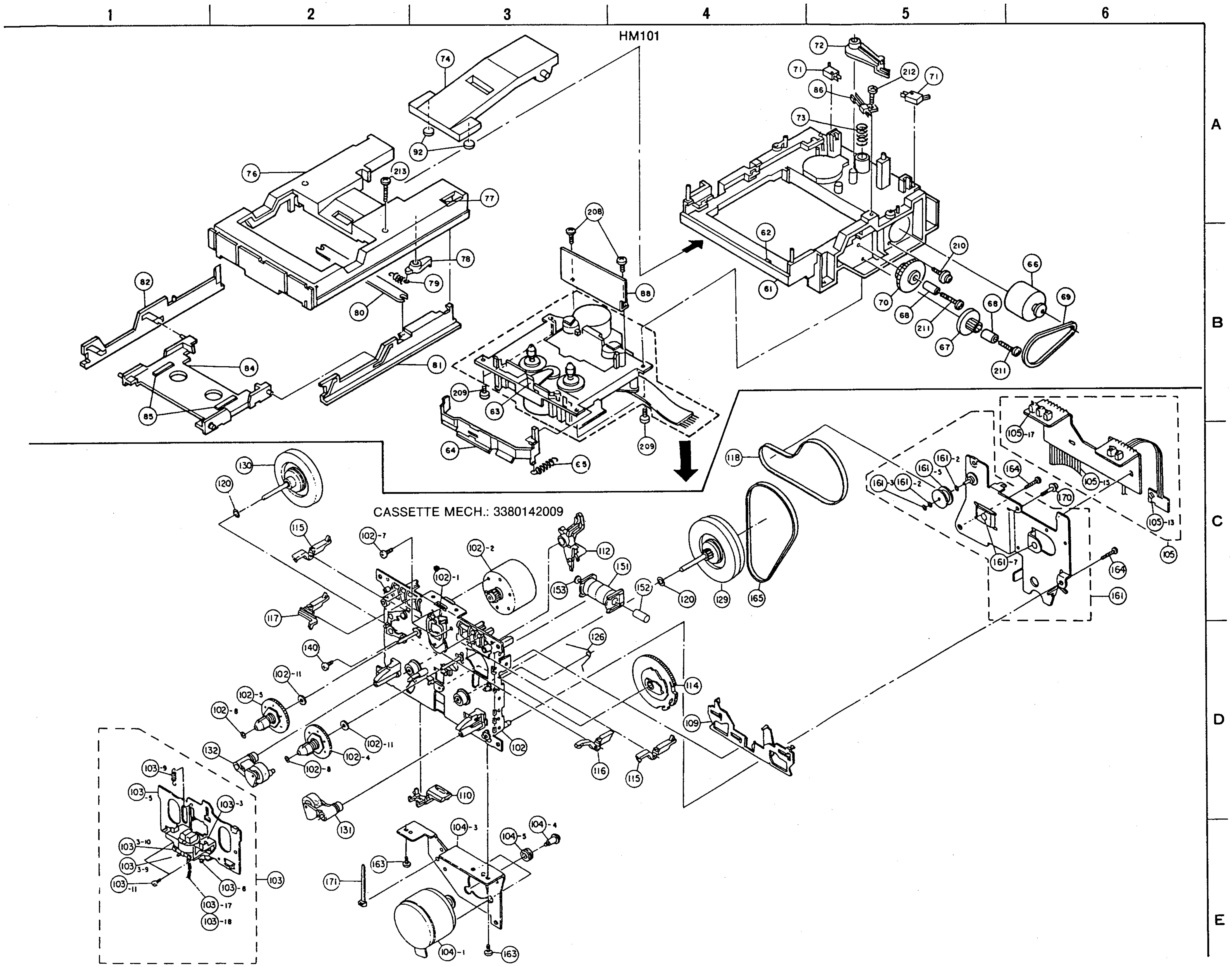
WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW



CASSETTE MECHA. EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 102	9DF 6121 41	Mecha Chassis		1
102-1	9DF 5170 49	Idler		1
102-2	9DF 5642 80	Reel Motor		1
102-4	9DF 6230 37	Reel Base BLK		1
102-5	9DF 6231 27	Reel Base BLK		1
102-7	9DF G156 11A	2.6×6.4 ZN Screw		2
102-8	9DF J111 17	1.7×0.25 Washer		2
102-11	9DU J12V 11	2.1×0.25 Poly Washer		2
103	9DF 5136 05	Head Blk		1
103-1	9DA Z14T 00	SPI-320AB		1
103-3	9DF 7690 16	Head Housing		1
103-3-9	9DF C47E 12	Head Adjust Spring		1
103-3-10	9DU G13A 11	1.7×5.2 ZNT Screw		2
103-8	9DF K20P 15	Rotate Spring		1
103-9	9DF K26N 14	HB Spring		1
103-11	9DU G19D 11	TT2.0×5 ZN Screw		2
◉ 103-17	9DWH57S 00	Wire Connector (E)		1
◉ 103-18	9DWH57R 02	Wire Connector (R/P)		1
◉ 103-21	9DWH47U 01A	Wire Connector (Q,S)		1
104	9DF 525S 270	Main Motor Ass'y		1
104-4	9DU G12W12	Motor Fixing Screw		3
104-5	9DF J115 12	Motor Cushion		3
◉ 105	9DF 5673 83	Control P.W.P.		1
105-13	9DA Z15S 00	Reel	GP2S04B	1
105-17	9DU E16E 11	Push Switch		5
109	9DF C52F 15	Slide Plate		1
110	9DF D45H 15	Holder		1
112	9DF D45G 12	Play Arm		1
114	9DF D45B 16	Cam Gear (3R)		1
115	9DF D445 14	Rec Sensor Arm		3
116	9DF D45L 11	Pack Sensor Arm (P)		1
117	9DF D44V 12	Metal Sensor Arm (L)		1
118	9DF F17G 21	Main Belt		1
120	9DF J111 30	2.6×0.25 Poly W. Washer		2
126	9DF K28R 11	Slide Spring		1
129	9DF R22M 11	Fly Wheel		1
130	9DF R22E 13	Fly Wheel		1
131	9DF R20L 21A	Pinch Roller Ass'y (R)		1
132	9DF R20M 22	Pinch Roller Ass'y (L)		1
140	9DU G12H 16	3.0×8 ZN Wave Screw		1
151	9DF 7652 63	Solenoid Ass'y		
152	9DF L39H 12A	Fix Metal Bar		
153	9DF L39K 12	Plunger		
◉ 161	9DF 5732 00	Plate Hold Ass'y		
161-2	9DF J111 18	Poly Washer 2.1×0.25		
161-3	9DF J123 28	1.7×0.25 Washer		
161-5	9DF R22N 12	Middle Pulley		
161-7	9DU J13L 11	Square Spacer		
163	9DK G194 28	TT2.6×4.7N Screw		
164	9DU G12H 14	2.6×8 ZN Wave Screw		
165	9DF F18A 11	Main Belt		
170	9DU G19C 11	M2.6×25 S Tite Screw		
◉ 171	445 8004 007	Wire Clamp		
172	9DU T11R 11	Reflector		


1
2
3
4
5
6
HM101
A
B
C
D
E
CASSETTE MECH.: 3380142009
74
92
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213
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208
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209
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211
67
211
118
105-17
161-2
161-5
161-3
161-2
164
105-13
170
105-13
105
161-7
164
161
130
120
115
102-7
102-2
102-1
112
151
153
152
120
129
165
117
126
140
102-11
102-5
102-8
114
109
102-11
102-4
102-8
102
116
115
132
110
131
103-9
103-5
103-3
103-10
103
103-9
103-11
103-6
103
103-17
103-18
104-3
104-4
104-5
163
171
104-1
163

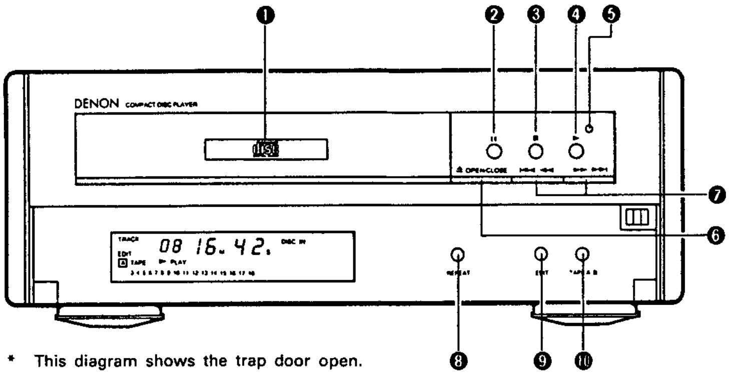
CASSETTE MECH. EXPLODED PARTS LIST (HM101)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
61	411 0987 307	Mech. Base		1
62	461 0581 012	Pad		1
63	463 0663 004	Cassette Spring		1
64	412 3084 202	Lever Plate Ass'y		1
65	463 0646 005	Lever Plate Spring		1
66	GEN 1162	Loading Motor Sub Ass'y		1
67	424 0130 008	Pully Gear		1
68	443 0999 004	Callor		2
69	423 0050 004	Belt		1
70	424 0131 007	Gear		1
71	212 4650 004	Leaf Switch		2
72	424 0155 203	Clamper Cam		1
73	463 0644 007	Clamper Arm Spring		1
74	433 0553 304	Clamper Arm		1
75	GEN 1161	Loader Frame Sub Ass'y		1
76	431 0295 200	Loader Frame		1
77	461 0581 009	Pad		1
78	424 0158 103	Stopper Cam		1
79	463 0647 004	Stopper Cam Spring		1
80	412 3084 200	Cam Plate		1
81	424 0157 308	Slide Cam (R)		1
82	424 0156 105	Slide Cam (L)		1
83	GEN 1311	Cassette Tray Sub Ass'y		1
84	431 0296 306	Cassette Tray		1
85	461 0593 000	Tray Pad		2
86	212 6011 007	Leaf Switch		1
★ 87	203 0288 007	1P Contact Ass'y		1
88	412 3083 007	Shield Plate		1
★ 89	203 4508 000	3P PH Connector Cord (Blue)		1
★ 90	203 4438 006	3P PH Connector Cord (Red)		1
★ 91	203 4736 005	3P PH Connector Cord		1
92	461 0613 003	Pad (Circule)		2
★ 93	445 8004 007	Wire Clamper		1
94				
SCREWS				**Q'ty**
208	473 8034 014	Tapping Screw (B) 3X6		2
209	473 7500 015	Tapping Screw (P) 3X8		4
210	477 0262 019	Special Screw		1
211	473 3808 009	Tapping Screw (1) 3X25		2
212	473 7505 007	Tapping Screw (P) 2.6X8		1
213	473 7501 027	Tapping Screw (P) 3X16		1
214				

CD SECTION

PART NAMES AND FUNCTIONS

CD PLAYER



* This diagram shows the trap door open.

❶ **Disc tray**
The disc tray opens forward when the OPEN/CLOSE button ❻ is pressed.
To close the disc tray, press the OPEN/CLOSE button ❻ again.

❷ **II PAUSE button**
Press this button to stop playback temporarily.
Press the PLAY button to resume playback.

❸ **■ STOP button**
Press this button to stop playback.

❹ **▶ PLAY button**
Press this button to start playing the disc.
If pressed when the disc holder is open, the disc holder closes and playback begins.

❺ **Play indicator**
This lights when the disc is played and sound is output.

❻ **OPEN/CLOSE button**
Press this button to open and close the disc holder.
Press once to open the disc holder forward, then press again to close the disc holder.

❼ **I◀◀ ◀◀ (automatic/manual search reverse button)**
Press this button to move the pickup back to the beginning of the desired track.
Press in the play or pause mode to move back a number of tracks equal to the number of times the button is pressed.

▶▶ ▶▶I (automatic/manual search forward button)
Press this button to move the pickup forward to the beginning of the desired track.
Press in the play or pause mode to move forward a number of tracks equal to the number of times the button is pressed.
* The automatic search function is set if the button is released within 0.5 seconds, and the manual search function is set if the button is held in for more than 0.5 seconds.

❽ **REPEAT button**
Press this button for repeat playback.

❾ **EDIT button**
Press this button for edited recording (dividing the tracks to be recorded to fit onto sides A and B of a tape according to the tape's length).

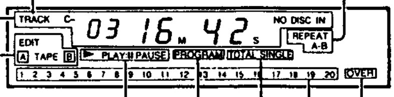
❿ **TAPE A/B button**
Press this button during editing to switch the display between the display for side A and the display for side B of the tape.

CD PLAYER DISPLAY

Track number display
00 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The total number of tracks is displayed in the stop mode.
- The track number is displayed in the play and program modes.
- [[or]] is displayed when the innermost or outermost section of the disc is reached in the manual search mode.

Time display
0000 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The elapsed playing time is displayed in the stop mode.
- The elapsed time for the track currently playing is displayed in the play and pause modes.
- The elapsed time for the programmed tracks is displayed in the program mode.

Tape type and remaining time display
During the editing function, c-*00* lights and the tape time is displayed.



The indicators switch as follows when the REPEAT button is pressed in the play mode:
First press : REPEAT
Second press : REPEAT 🄰
Third press : REPEAT 🄰 - 🄱
Fourth press : Off

▶ PLAY lights when the disc is playing, and II PAUSE lights when in the pause mode.

This lights when there are more than 20 tracks on the disc.

These indicate the time display mode.
TOTAL lights when the remaining time for all tracks is displayed.
SINGLE lights when the remaining time per track is displayed.

During editing, EDIT, 🄰, and TAPE light, the remaining time for side A is displayed on the time display, the numbers of the tracks set for side A light on the calendar display, while the numbers of the tracks set for side B flash. When the TAPE A/B button is pressed, 🄰 turns off, 🄱 lights, and the remaining time and numbers of the tracks set for side B are displayed in the same way as for side A.

"Music calendar" display
This indicates the numbers of the tracks on the disc, up to a maximum of 20.
The track numbers turn off after the corresponding tracks are played.
In the program mode, the numbers of the programmed tracks are displayed, up to a maximum of 20.
All indicators, 1 to 20, light when the disc data cannot be read properly.

PROGRAM lights during the programmed search mode.

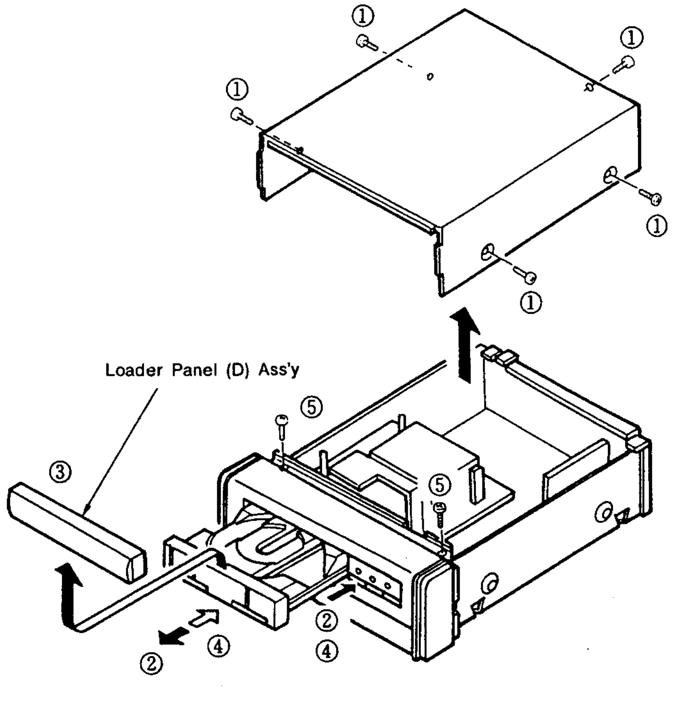
- NO DISC lights on the display if no disc is loaded, or if the disc is loaded upside-down or is heavily scratched or dirty.

REMOVAL OF EACH SECTION

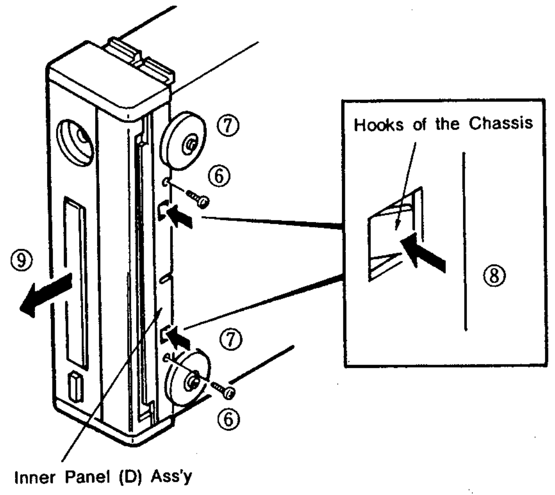
(Follow this procedure in the reverse order when assembling.)

1. Removal of the top cover

① Remove the 5 screws which fasten the top cover.
② Press the ▲ OPEN/CLOSE button and eject the CD tray.
③ Remove the loader panel (D) assembly in the direction of the arrow.
④ Press the ▲ OPEN/CLOSE button and retract the CD tray.
⑤ Remove the 2 screws which fasten the front panel assembly. At this time, remove with care the connector which connects the main unit assembly and the front panel side assembly.



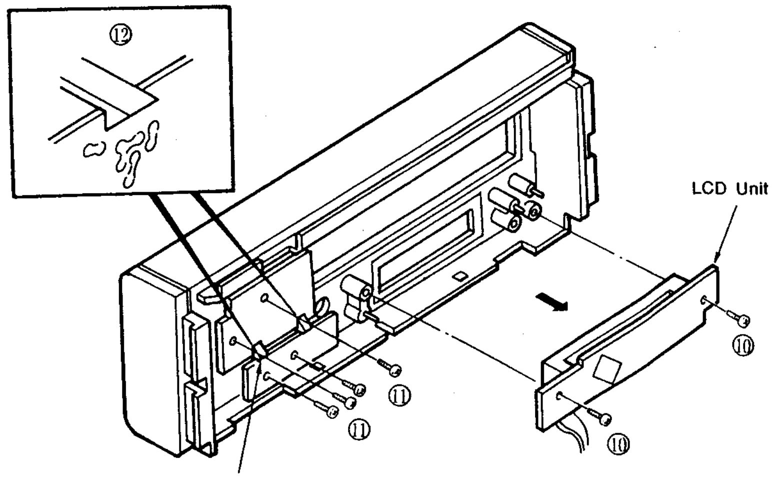
⑥ Stand the main unit as illustrated in the diagram and remove the 2 screws which fasten the inner panel assembly.
⑦ Slightly loosen the screws of the 2 front legs.
⑧ Remove the hooks of the chassis from the inner panel assembly.
⑨ Remove the front panel assembly in the direction of the arrow.



2. Removal of the printed wiring board assembly

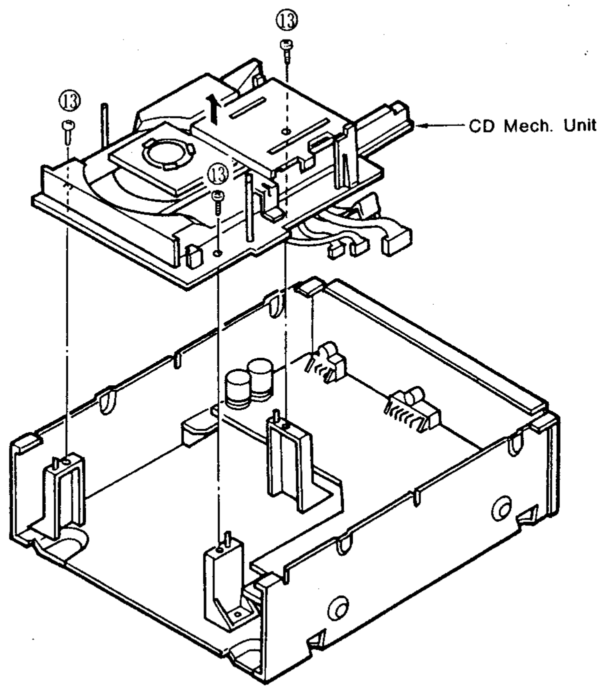
LCD UNIT (1U-2280-2)

⑩ Remove the 2 screws which fasten the LCD unit.
⑪ Remove the 4 screws which fasten the various boards.
⑫ Remove the hooks of the inner panel assembly.



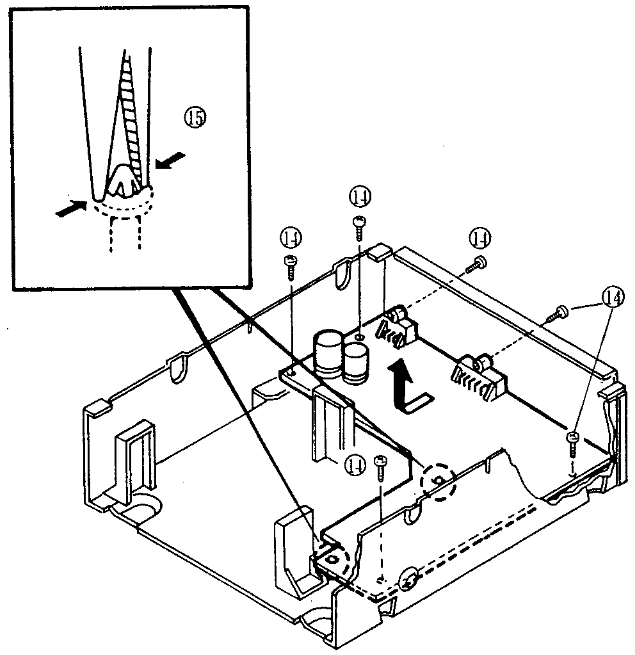
3. Removal of the CD mechanism unit

⑬ Remove the 3 screws which fasten the CD mechanism unit. At this time, remove with care the connector which connects the CD mechanism unit and the main unit assembly.



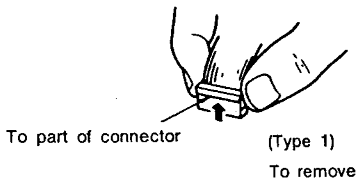
MAIN UNIT ASSEMBLY (1U-2280-1)

⑭ Remove the 6 screws which fastens the main unit assembly.
⑮ Use radio pliers or another suitable tool to remove the 2 PCB holders which fasten the main unit assembly.



※ Removing connectors (Type 1)

- Hold the top part of the connector, release the lock, and pull out the wires.
- When the lock of the top has not come off, the wires will not come out, so check that the lock has come off.

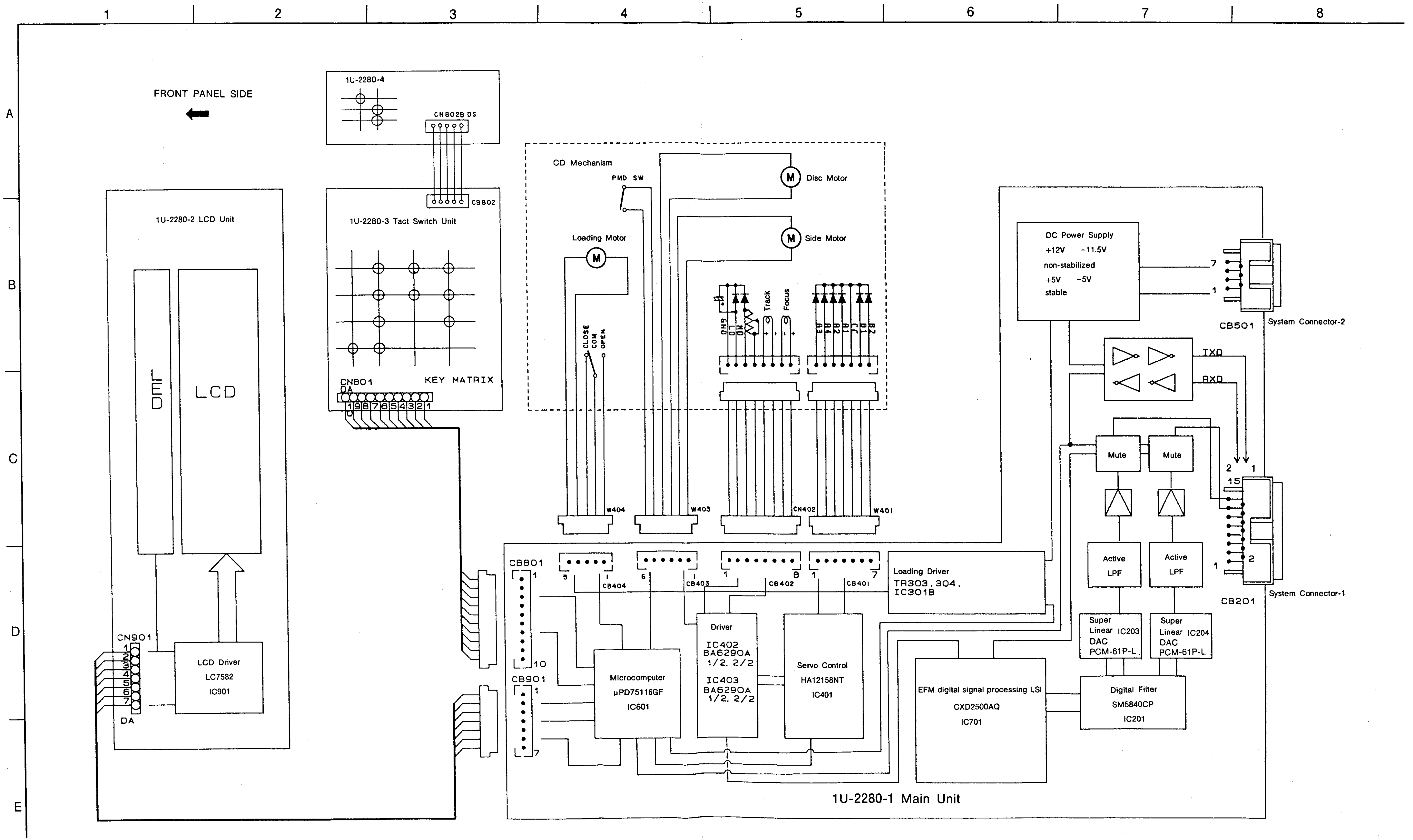


※ Connecting the connectors (Type 1)

- Press the top of the connector and lock it to the base, fix the bend of the wires, match the polarities, and press in. When the top section is not locked, the wires will come out, so check that the top section is locked.

CD SECTION

BLOCK DIAGRAM


1
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3
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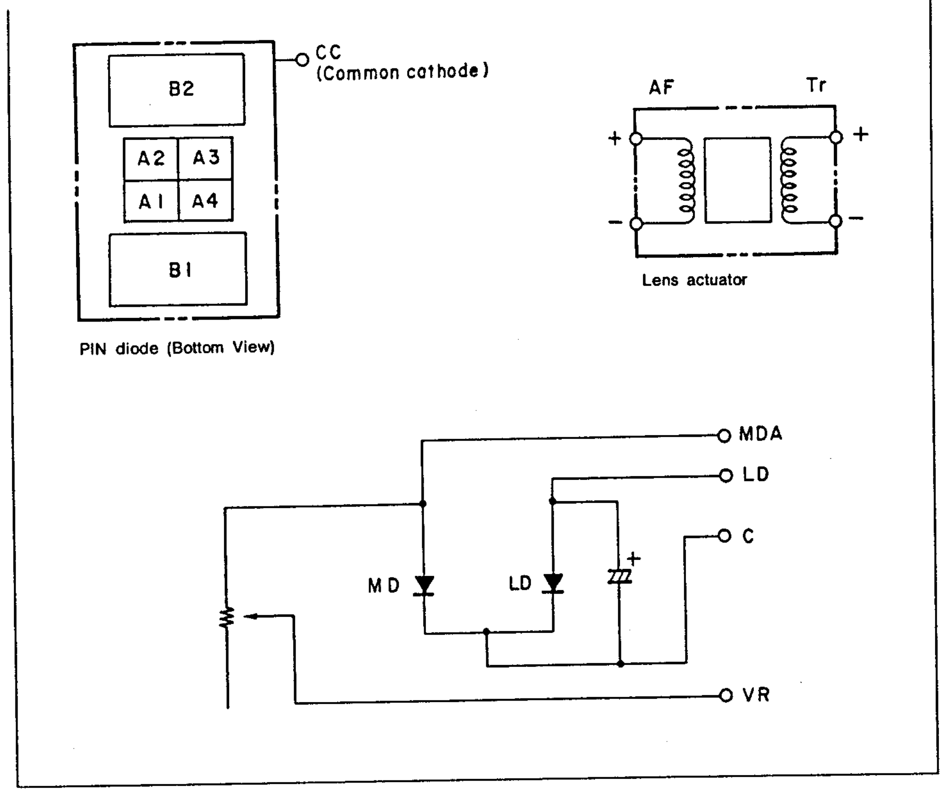
5
6
7
8
A
B
C
D
E
FRONT PANEL SIDE
1U-2280-4
CN802B DS
CB802
1U-2280-3 Tact Switch Unit
KEY MATRIX
CN801
DA
1 9 8 7 6 5 4 3 2 1
1U-2280-2 LCD Unit
DML
LCD
LCD Driver
LC7582
IC901
CN901
1
2
3
4
5
6
7
DA
CD Mechanism
PMD SW
Disc Motor
Side Motor
Loading Motor
M
CLOSE
COM
OPEN
GND
LD
MD
Track
Focus
A3
A4
A2
A1
CC
B1
B2
W404
W403
CN402
W401
CB801
1
10
CB901
1
7
5
1
CB404
6
1
CB403
1
8
CB402
1
7
CB401
Loading Driver
TR303, 304,
IC301B
Microcomputer
µPD75116GF
IC601
Driver
IC402
BA6290A
1/2, 2/2
IC403
BA6290A
1/2, 2/2
Servo Control
HA12158NT
IC401
EFM digital signal processing LSI
CXD2500AQ
IC701
Digital Filter
SM5840CP
IC201
Super Linear IC203 DAC PCM-61P-L
Super Linear IC204 DAC PCM-61P-L
Active LPF
Active LPF
Mute
Mute
DC Power Supply
+12V -11.5V
non-stabilized
+5V -5V
stable
7
1
CB501
System Connector-2
TXD
RXD
2
1
15
1
2
CB201
System Connector-1
1U-2280-1 Main Unit

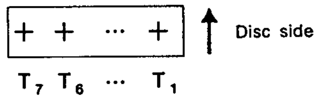
LASER PICKUP

Connections Diagram

Pickup Circuit Diagram

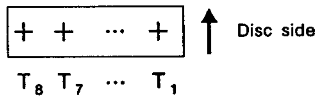

CC
(Common cathode)
B2
A2
A3
A1
A4
B1
PIN diode (Bottom View)
AF
Tr
+
+
-
-
Lens actuator
MDA
LD
C
MD
LD
+
VR

1. **PD connector**
   PH pin post 7 pins (Type number B7B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)


+ + ··· +
Disc side
T7 T6 ··· T1

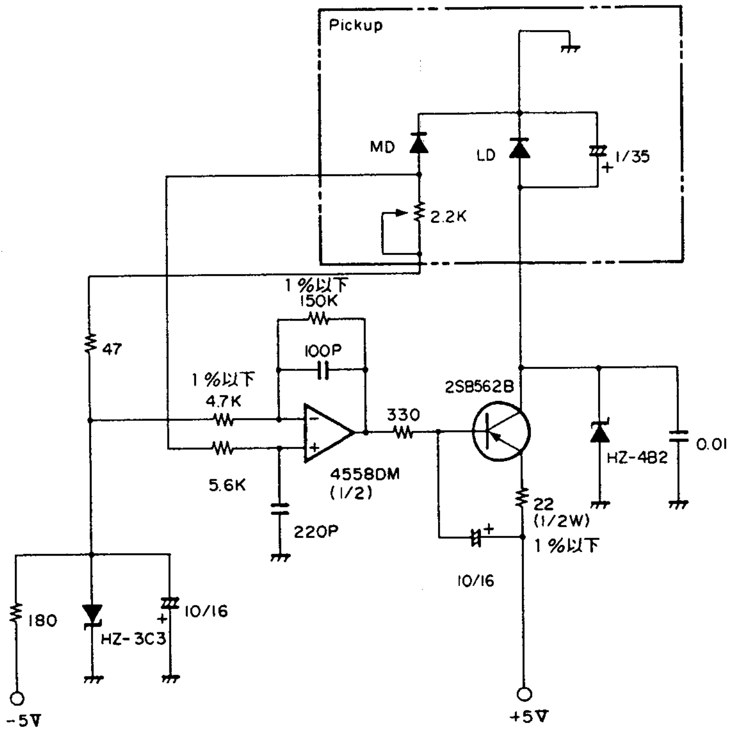
Tn	1	2	3	4	5	6	7
Item	A_3	A_4	A_2	A_1	CC	B_1	B_2

2. **LD actuator connector**
   PH pin post 8 pins (Type number B8B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)

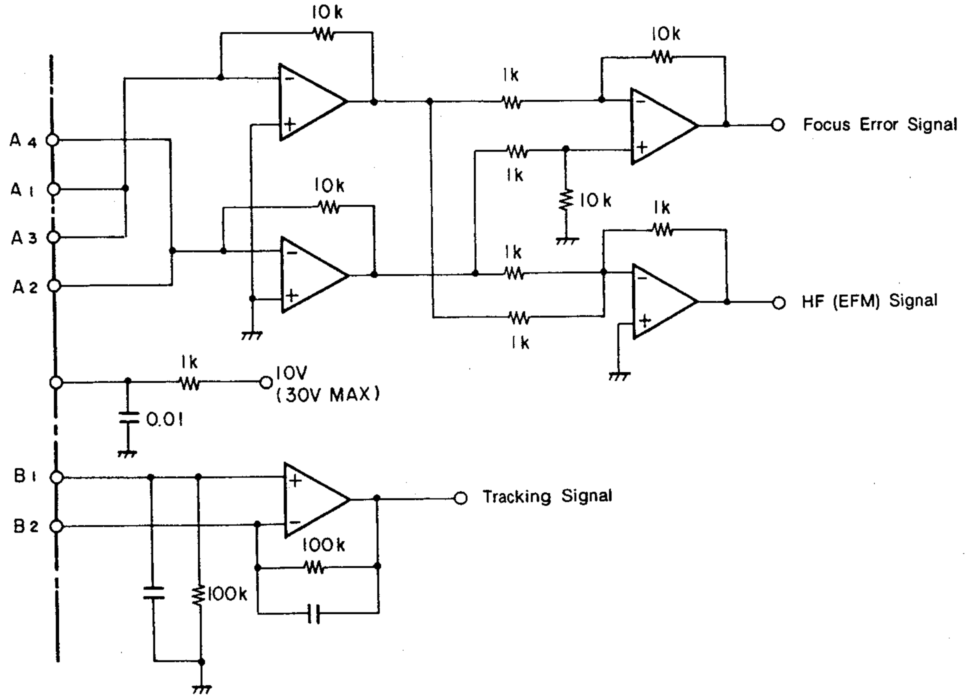

+ + ··· +
Disc side
T8 T7 ··· T1

Tn	1	2	3	4	5	6	7	8
Item	C	LD	MDA	VR	TR+	TR−	AF−	AF+

Basic Laser Drive Circuit Diagram


Pickup
MD
LD
1/35
+
2.2K
1%以下
150K
100P
47
1%以下
4.7K
2SB562B
330
4558DM
(1/2)
5.6K
220P
HZ-4B2
0.01
22
(1/2W)
1%以下
10/16
180
HZ-3C3
10/16
-5V
+5V

Measuring Circuit Diagram


10k
10k
1k
A4
A1
A3
A2
10k
1k
10k
1k
1k
1k
Focus Error Signal
HF (EFM) Signal
1k
10V
(30V MAX)
0.01
B1
B2
Tracking Signal
100k
100k

CD SECTION

● Precautions in Use

Read the following carefully before handling.

1. **Laser control circuit**

   The light output of the laser diode (LD) is greatly affected by temperature, so a built-in monitor photodiode should be used in the LD to supplement the light output.

   In order to get rid of the dispersion of the monitor photodiode, the semiconductor resistor accompanying the pickup has been adjusted so that the mirror surface level of the HF signal becomes 250 mV when the measurement circuit of this manual and the basic laser drive circuit are used. When designing a new laser drive circuit, note that the life of the laser will be shortened when the mirror level of the HF signal becomes 275 mV with this measuring circuit.

2. **Wiring**

   Be sure to use the specified connectors for the wiring.

   Note that the eye pattern may deteriorate when there is a microprocessor or other digital noise source in the vicinity from the photodiode to the harness.

   Note that a poor connection related to the LD and actuator connector will cause deterioration of the laser, and so there should not be any looseness of connectors.

● Precautions in Handling

This mechanism has been precisely assembled and adjusted at a special factory. It should not be disassembled or adjusted without good reason. Pay attention to the following points related to handling.

1. General items

(1) Storage

Avoid storage in places with high temperatures and high humidity, and in places exposed to a lot of dust.

(2) Handling

The unit has been precisely adjusted and care should be taken so as not to expose the unit to shocks through dropping or careless handling.

2. Semiconductor laser (LD)

(1) Protection of the eyes from the laser

The output of the LD is via an objective lens and is a maximum of 400 μW, but reaches approximately 1.3×10^{1}W/cm_2 in places where there is condensed light. After being condensed by the objective lens, the beam widens and so is all right at a distance of 30 cm or further, but during operation the LD should never be allowed to be viewed directly or through another lens or mirror since this is dangerous.

(2) Destruction by surge currents or static electricity

When a large current flows through the LD, even for a very short period, the strong light which the LD generates itself will advance the deterioration of the LD or destroy it.

Wire a switch into the LD drive circuit or provide another method of preventing the flow of surge currents. Also, when handled without care, the LD can be destroyed instantly by the application of static electricity from the body. Therefore, when handling the LD, be sure to ground your body and ground the measuring instruments, jigs, and tools. It is also desirable to use a grounding mat on the work bench and floor.

3. Lens actuator

(1) The actuator section uses a strong magnetic circuit, so that when magnetic bodies come too close, their characteristics are altered. Also be careful not to allow foreign matter to enter from the cover gap.

(2) Lens cleaning

Dust or dirt adhering to the objective lens will change the performance.

To clean, blow the dirt away with clean air from an air blower.

4. Handling

Be sure not to contact the lens when handling the LD.

Note that direct contact of the body or other objects with the circuit of the LD board will cause deterioration to occur, so sufficient care should be taken.

SERVICE POINTS

1. Parts replacement of the tray mechanism (Figs. 1 and 2)

(1) Removal of the tray

Open the tray and use a flat-bladed screwdriver to press the stopper portions of Fig. 1 (one each in the left and right locations) in the direction of the black arrow, then remove in the direction of the white arrow.

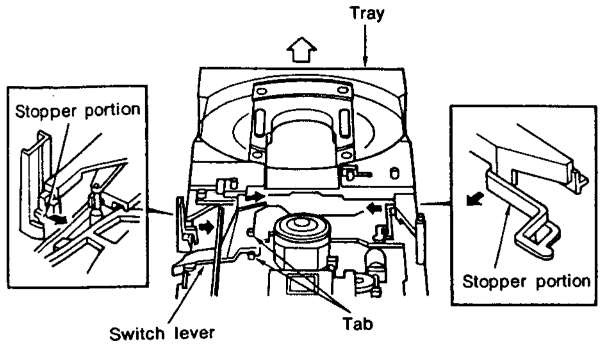


Fig. 1

(2) Mounting of the tray (Figs. 1, 2, and 3)

Rotate the switch lever in the direction of the arrow, set the latches of the tray as illustrated in Fig. 2, then align the rails of the tray in the grooves of the loading plate, and insert so that the pinch lever pins of the switch lever enter into the rack grooves. Push in the tray while pressing the stopper portion inside a little.

(Check that the latches are in the positions illustrated in Fig. 2.)

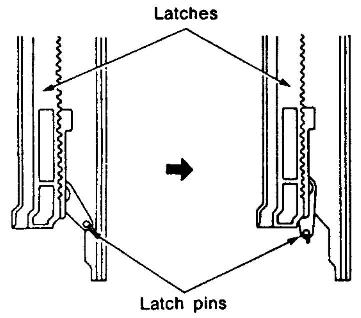


Fig. 2

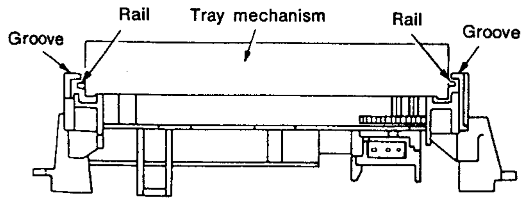


Fig. 3

(3) Replacement of the disc holder (Fig. 4)

With the tray removed, remove tabs Ⓓ and Ⓔ of the disc receptacle of Fig. 4, then lift up and off.

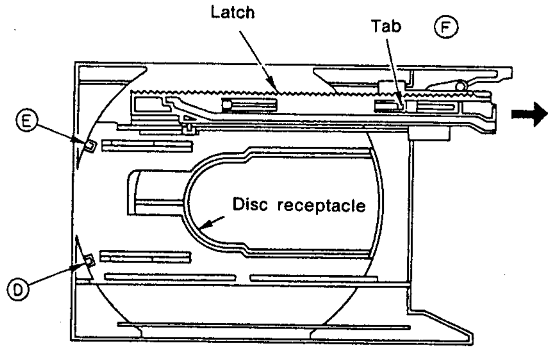


Fig. 4

(4) Replacement of the latches (Fig. 4)

Set the latches into the condition of Fig. 4, lift the latch tab (F) up about 1 mm with a flat-bladed screwdriver and remove the rack in the direction of the arrow.

(5) Removal of the loading motor and switches (Fig. 5)

Remove the belt from the loading motor, then remove the 3 tabs. Remove the fixed tabs from the various switches.

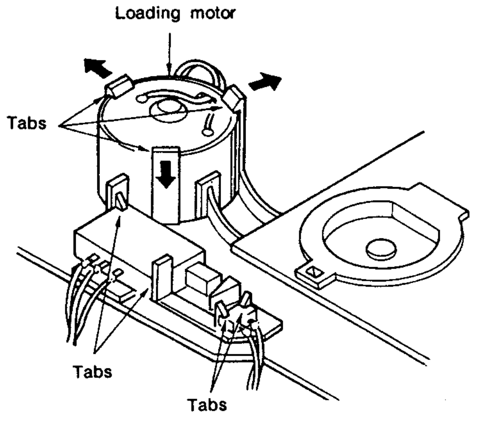


Fig. 5

(6) Replacement of the belt

Replace the belt with the tray removed.

(7) Replacement of the clamper (Fig. 6)

Hook the elongated holes of the clamper onto the C arm, bend the elongated hole sections and attach.

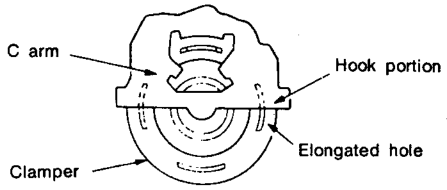


Fig. 6

(8) Replacement of the switch lever (Fig. 1)

Remove the tabs of the bottom side (in 2 locations).

2. Removal of the unit mechanism (Fig. 7)

After removing the loading mechanism, remove the tab of the bottom surface (in one location) as illustrated in Fig. 7.

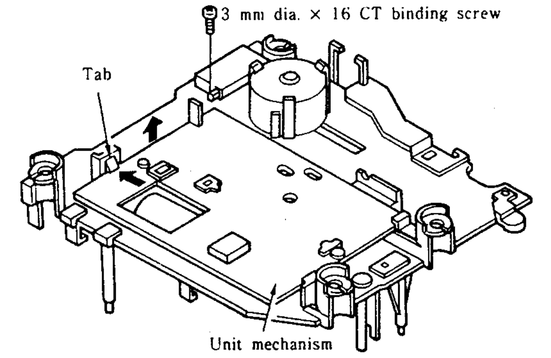
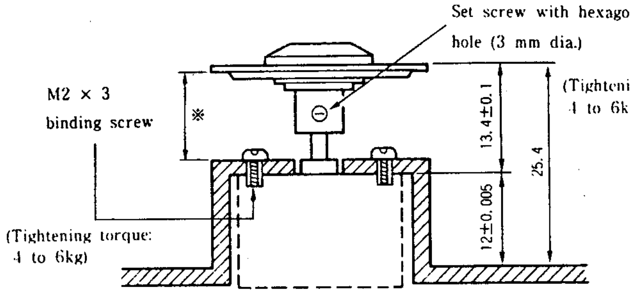

3 mm dia. × 16 CT binding screw
Tab
Unit mechanism

Fig. 7

(1) To replace the DC motor (D2) and the turntable, follow the procedure below

1) Pull the turntable (plastic) off vertically from the unit plate.

2) When fitting on the servicing turntable (metal), make a height adjustment. (Fig. 8)
Do not exert excessive force to the shaft of the DC motor (D2) at this time.


Set screw with hexagonal hole (3 mm dia.)
M2 × 3 binding screw
※
(Tightening torque: 4 to 6kg)
13.4±0.1
12±0.005
25.4
(Tightening torque: 4 to 6kg)

For the dimensions at parts marked "※", adjust the height using the turntable height JIG.
JIG No.: SGK-0030

Fig. 8

3) At the time of service replacement of the DC motor (D2), do not apply excessive force in direction B. When part C of the unit plate is misshapen, it will cause eye pattern deterioration. (Fig. 9)

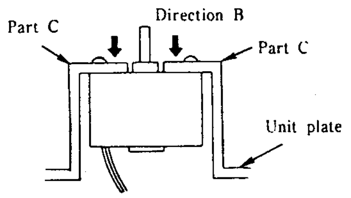

Direction B
Part C
Part C
Unit plate

Fig. 9

NOTE:
- Motor replacement or turntable replacement method
  Remove the pressure-fitted turntable, and remove the motor screws.
- Do not reuse a turntable (plastic) that has been removed once.

(2) When disassembling and assembling the unit mechanism, assemble with wiring resembling that of Fig. 10

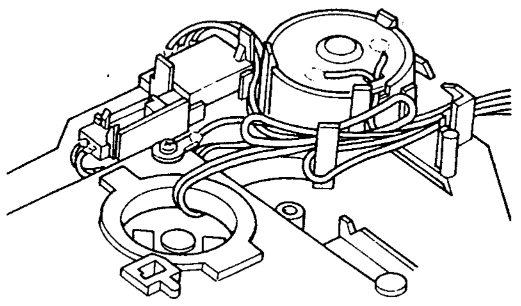


Fig. 10

3. Inspection of the objective lens (Fig. 11)

Handle so as not to get dirt or dust on the objective lens of the lens actuator section. Note that when used for a long period, dirt or dust may have adhered to the objective lens. Try cleaning the surface of the objective lens with a dry, clean cotton swab.
If the dirt still does not come off, moisten the cotton swab with a small amount of water and wipe. When doing this, be careful not to get water on any parts other than the lens.

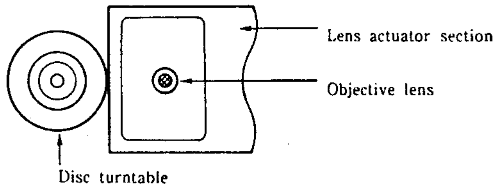

Lens actuator section
Objective lens
Disc turntable

Fig. 11

4. Inspection for laser breakdown

The laser is normally driven with a current of 30 to 80 mA. If this laser drive current value is measured at 120 mA or higher in the circuit, the laser may be thought to be faulty. (The current value is measured by taking the voltage (0.99 to 3.3 V) across both ends of R401, which is 33 ohms).

5. Precautions at time of servicing (Fig. 12)

(1) Semiconductor laser

The semiconductor laser is very susceptible to static electricity destruction and surge currents. Be careful never to touch the terminals of the semiconductor laser and the terminals of the flexible board with your hands or a tool.
As illustrated in Fig. 12, the current and light intensity characteristics increase abruptly once the threshold current value is exceeded.
Also note that this threshold current differs a little from laser to laser. In view of this, when replacing the unit mechanism or any work that involves setting the amount of light of the laser, be sure to turn the adjustment control VR401 fully in the counterclockwise direction, and then raise it to the specified value.

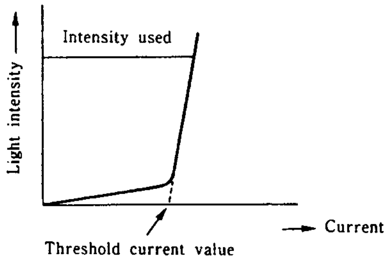


Fig. 12

(2) Handing the unit mechanism (Fig. 13)

When handling the pickup mechanism and the unit mechanism, use a ground ring such as the one illustrated in Fig. 13. (A ground ring can be constructed using ordinary lead wire.)

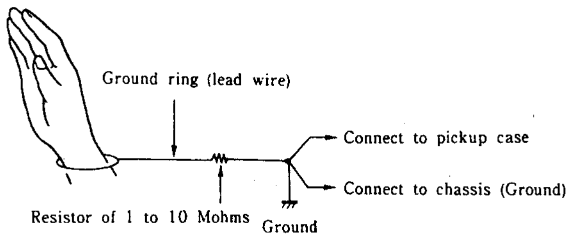

Ground ring (lead wire)
Connect to pickup case
Connect to chassis (Ground)
Resistor of 1 to 10 Mohms
Ground

Fig. 13

6. Inspection of the actuator (Fig. 14)

Check the resistance value of the actuator coil. It is normal if the values are as follows:

Focusing coil .... 30 ohms
Tracking coil .... 10 ohms

If the coils are open or shorted, the actuator may be thought to be broken. Also, a 1.5 V battery can be used to observe if the lens moves.

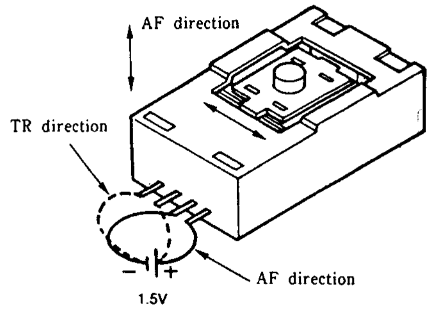

AF direction
TR direction
AF direction
1.5V

Fig. 14

CD SECTION

ADJUSTMENT METHOD

The microprocessor contained in this unit incorporates a service program which allows a wide variety of service adjustments to be conducted easily by using the operation buttons.

1. Method of starting the service program

NOTE: When the service program starts, normal operations are not longer possible with the operation buttons.

2. Operation functions when the service program is operating

Operation button	Operation function	Description
⏏ OPEN/CLOSE	Opens and closes the disc holder.	● Opening and closing takes place when the rotation of the disc has stopped. ● Other operation buttons are performed when the opening and closing operation is completed.
■ STOP	Stops system operation.	● Track number display becomes 01 . ● Press when an adjustment has been completed or is redone.
▶ PLAY	Operates the focus servo and rotates the disc.	● Press at the time of the tracking offset adjustment. ● After the operation is completed, the track number display becomes 02 .
❚❚ PAUSE	Operates the focus servo, tracking servo, slide servo, and the spindle servo.	● When the play button has been pressed, the tracking servo and slide servo are operated. ● After the operation is completed the track number display becomes 03 .
Other buttons	Operation is not normal.	● Do not operate buttons other than the above. ● When a button is operated by mistake, immediately turn the power switch off.

NOTE: Do not use the remote control while the service program is operating.

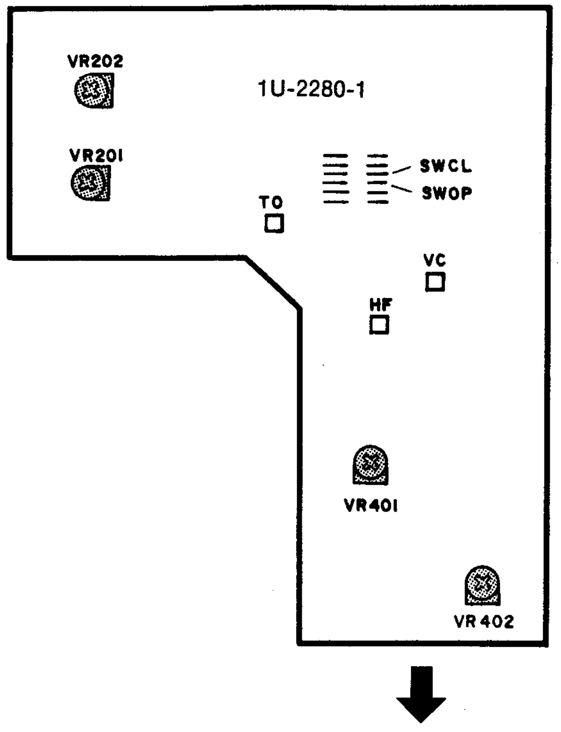
3. Adjustment method

(1) Measuring instruments required in the adjustment

① DC voltmeter
② Oscilloscope

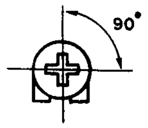
Outline Diagram of Adjustment Locations

1U-2280A-1 CD Unit (Component Side)



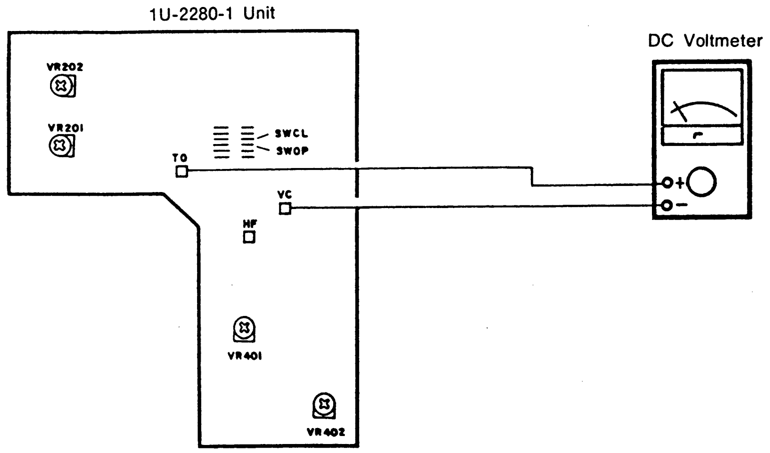
NOTE: VR201 and 202 are adjusted at the factory before shipping and there is no need to adjust.

(2) Adjustment preparation

1.	Set the adjustment control (VR401, 402) to the position illustrated.	VR401 (T-OFFSET) VR402 (F-OFFSET) 
2.	Adjustment step	1. Tracking offset 2. Focus offset

(3) Tracking offset adjustment

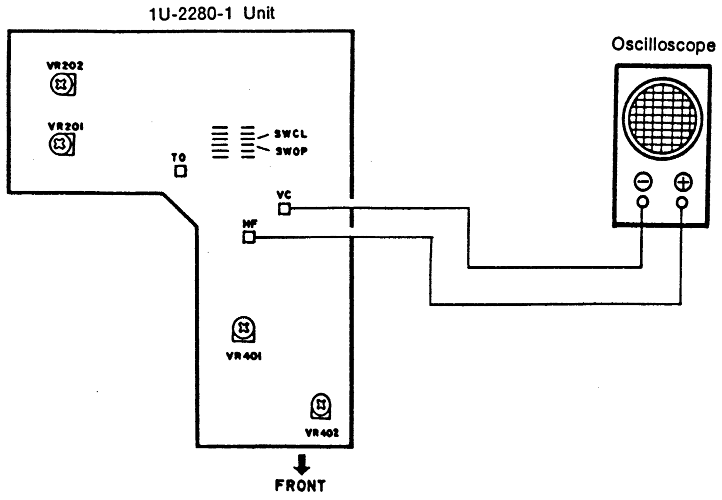
Wiring Diagram

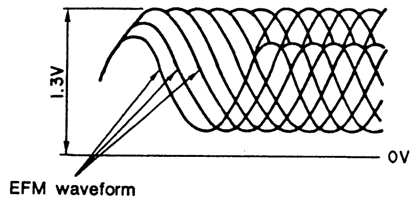
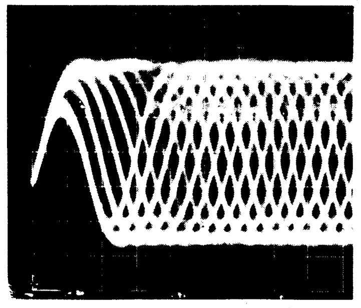

1U-2280-1 Unit
VR202
VR201
TO
SWCL
SWOP
VC
HF
VR401
VR402
DC Voltmeter
+
−

Adjustment location	Adjustmnet Procedure
(Control)	
VR401	1. Adjust the VR401 "T-OFFSET" control and set the OmV ± 5mV.

(4) Focus offset Adjustment

Wiring diagram


1U-2280-1 Unit
VR202
VR201
TO
SWCL
SWOP
VC
HF
VR401
VR402
FRONT
Oscilloscope
⊖
⊕

Oscilloscope		Adjustment location	Check items
V	H	Control	Oscilloscope
50mV/div or 20mV/div	0.2 μ/div or 0.5 μ/div	VR402	 1.3V 0V EFM waveform Adjust for Fine waveform  EFM waveform

Adjustment Procedure

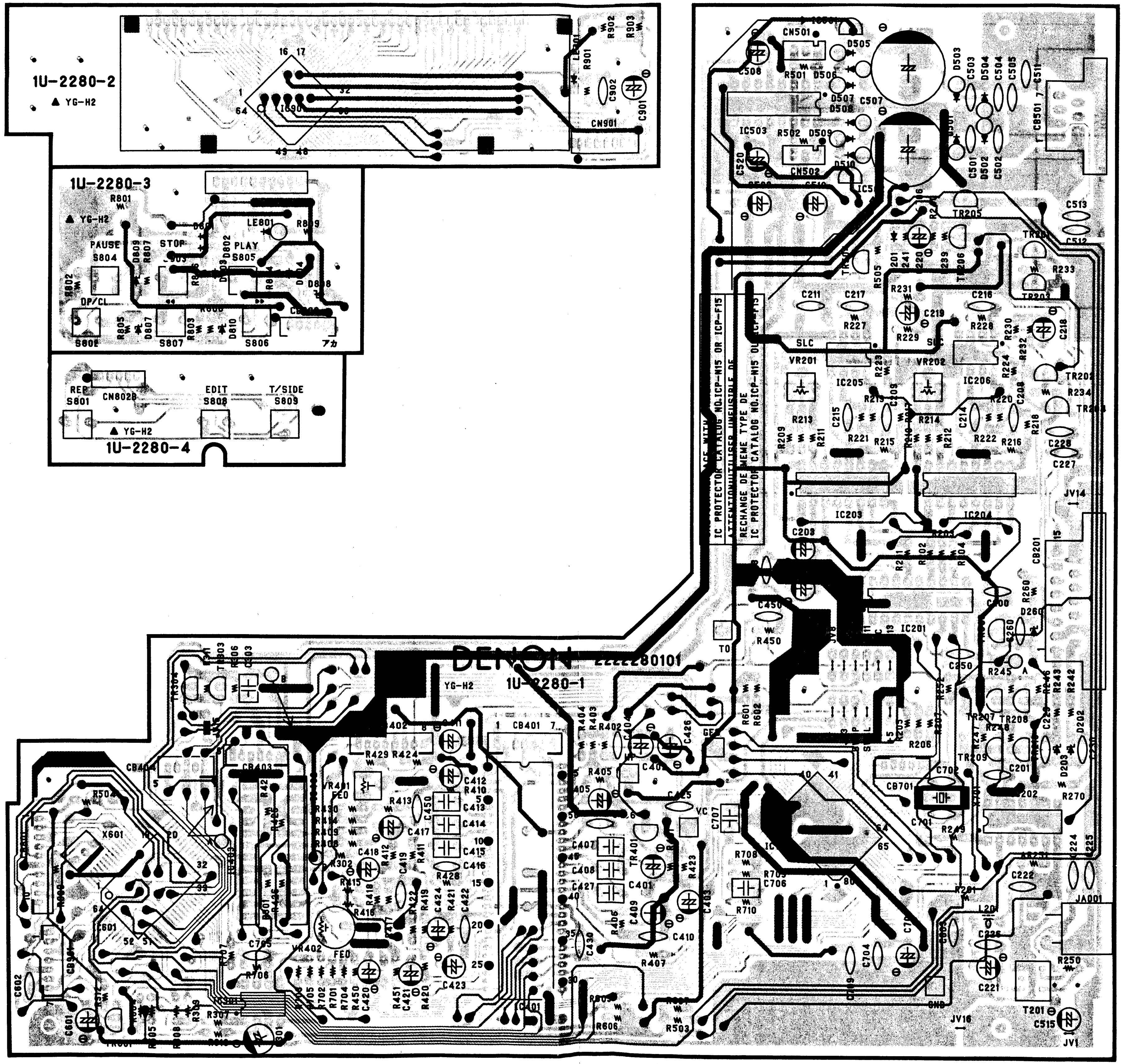
1. Press the ▶ PLAY button.
2. Adjust VR402 ("F-OFFSET") so that the eye pattern jitter is minimum.

CD SECTION

PRINTED WIRING BOARD

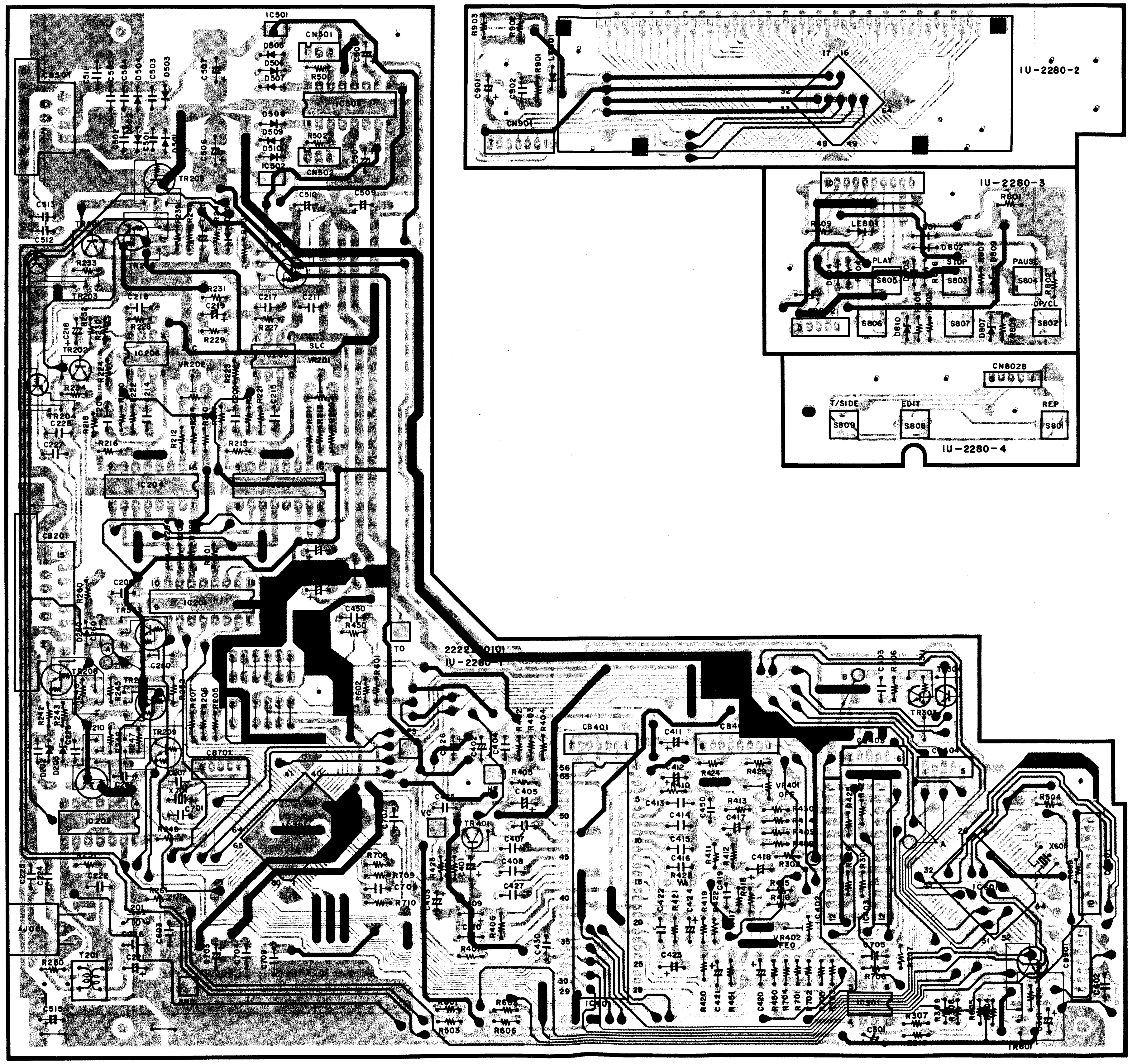
1U-2280A CD UNIT ASS'Y

Component Side


1
2
3
4
5
6
7
8
A
B
C
D
E
1U-2280-2
▲ YG-H2
1U-2280-3
▲ YG-H2
PAUSE
S804
STOP
PLAY
S805
OP/CL
S802
S807
S806
1U-2280-4
REP
S801
CN802
EDIT
S808
T/SIDE
S809
▲ YG-H2
DENON
2222280101
YG-H2
1U-2280-1
IC PROTECTOR CATALOG NO.ICP-N15 OR ICP-F15
ATTENTION:UTILISER UNIQUEMENTE DE RECHANGE DE MEME TYPE DE IC PROTECTOR CATALOG NO.ICP-N15 OU ICP-F15
CN501
CN502
CN901
CB501
CB201
CB401
CB403
CB404
CB701
IC201
IC203
IC204
IC205
IC206
IC401
IC503
IC601
IC901
X601
VR201
VR202
VR401
VR402
JA001
JV1
JV14
JV16
T201
SLC
FEO
GND

1 2 3 4 5 6 7 8

Pattern Side


IU-2280-1
2222200101
IU-2280-2
IU-2280-3
IU-2280-4
CN8028
T/SIDE
S809
EDIT
S808
REP
S801
PLAY
S805
STOP
S803
PAUSE
S804
OP/CL
S802
S806
S807
LE801
IC501
IC502
IC503
CN501
CN502
CB501
TR205
IC204
IC203
IC201
IC202
VR201
VR202
SLC
CB201
CB701
CB401
CN901
VR401
OPC
VR402
FEO
TR401
TR301
TR601
X601
T201
TO
VC

A
B
C
D
E

CD SECTION

NOTES ON THE PARTS TABLE

NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/6 W, 1/4W Type in the P. W. Board parts list.
- Parts marked with this symbol ⚠ ▨ have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.
- Refer to the following table for the codes of the resistors and capacitors appearing on the parts list.

- **Resistors**

Ex.:	RN	14K	2E	182	G	FR
	Type	Shape and performance	Power	Resistance	Allowable error	Others

Type	Power	Allowable error	Others
RD : Carbon	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Fixed	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

★ Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm

2 — Indicates number of zeros after effective number

1 8 — 2-digit effective number, decimal point indicated by R.

- Units: ohm

- **Capacitors**

Ex.:	CE	04W	1H	2R2	M	BP
	Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others

Type	Dielectric strength	Allowable error	Others
CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V		C : CSA part
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type
CF : Metallized	2C : 160V		F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	− : Others	
	2J : 630V		

★ Capacity

2 R 2 ⇨ 2.2 μF

2 — 1-digit effective number, decimal point indicated by R.

2 R — 2-digit effective number, decimal point indicated by R.

- Units: μF, (for P, pF (μμF)
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2280A CD UNIT PARTS LIST

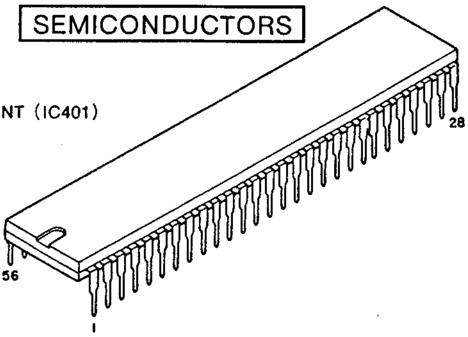
Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC201	262 1450 008	IC SM5840CP	
IC203,204	262 1409 004	IC PCM61P-L	
IC205,206	263 0712 009	IC :RC4558P	
IC301	263 0712 009	IC :RC4558P	
IC401	263 0749 001	IC HA12158NT	
IC402,403	263 0750 003	IC BA6290A	
IC501,502	268 0073 905	IC ICP-N15	IC Protector
IC503	263 0693 005	IC M5290P	
IC601	262 1456 206	IC μPD75116GF-E16-3BE	μ-Com
IC701	262 1514 009	IC CXD2500AQ	
IC901	263 0533 000	IC LC7582	
TR203,204	269 0073 908	Transistor DTC314TS	built in Resistor
TR205	269 0046 906	Transistor DTA114ES	built in Resistor
TR206~209	269 0020 906	Transistor DTC114ES	built in Resistor
TR210	269 0040 902	Transistor DTC144ES	built in Resistor
TR303	274 0144 907	Transistor :BC368	
TR304	272 0101 902	Transistor :BC369	
TR401	271 0102 924	Transistor 2SA1015 (GR)	
TR501	274 0136 009	Transistor 2SD1913	
TR502	272 0093 007	Transistor 2SB1274	
TR503,504	269 0020 906	Transistor DTC114ES	built in Resistor
TR801	269 0046 906	Transistor DTA114ES	built in Resistor
D201	276 0432 903	Diode 1SS270A	
D202,203	276 0462 915	Zener Diode HZS6B-2	6V
D260	276 0462 915	Zener Diode HZS6B-2	6V
D501~510	276 0550 908	Diode 1SR139-200	
D801~804	276 0432 903	Diode 1SS270A	
D807~810	276 0462 915	Zener Diode HZS6B-2	6V
LE801	393 9483 902	LED (SLR-34MC70F120)	Green
LE901	393 9493 002	LED Ass'y	
LC901	393 4105 007	LCD Ass'y	
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
R302	245 2369 902	Metal Film 8.2kohm 1% 1/4W	RN14K2E822F
R408	245 2370 946	Metal Film 33kohm 1% 1/4W	RN14K2E333F
R409	245 2370 904	Metal Film 22kohm 1% 1/4W	RN14K2E223F
R707	245 2370 946	Metal Film 33kohm 1% 1/4W	RN14K2E333F
VR201,202	211 6087 928	Semi Fixed Resister 100k ohm	V06PB104
VR401	211 6079 910	Semi Fixed Resister 4.7k ohm	V06PB472
VR402	211 6064 022	Semi Fixed Resister 100k ohm	V06PB104
CAPACITORS GROUP			
C200	253 9031 027	BC Ceramic 0.1 μF/25V	CK45=1E104K
C201	253 9036 006	BC Ceramic 0.1 μF/25V	CK45=1E104Z
C202,203	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M
C208,209	255 1120 000	Film 0.001 μF/50V	CQ93M1H102J
C211	253 9031 027	BC Ceramic 0.1 μF/25V	CK45=1E104K
C213	253 9031 027	BC Ceramic 0.1 μF/25V	CK45=1E104K
C214,215	253 3634 006	Ceramic 200pF/50V	CC45SL1H201J
C216,217	253 3627 000	Ceramic 100pF/50V	CC45SL1H101J
C218,219	254 4254 048	Electrolytic 100 μF/16V	CE04W1C101M
C220	254 4254 051	Electrolytic 220 μF/16V	CE04WIC221M
C227,228	253 3627 000	Ceramic 100pF/50V	CC45SL1H101J
C229,230	253 3643 000	Ceramic 470pF/50V	CC45SL1H471J
C250	253 3638 002	Ceramic 300pF/50V	CC45SL1H301J
C260	253 3643 000	Ceramic 470pF/50V	CC45SL1H471J
C301	254 4260 061	Electrolytic 3.3 μF/50V	CE04W1H3R3M
C303	256 1047 005	Metalized 0.022 μF/50V	CF93A1H223JH
C401	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C402	254 4299 003	Electrolytic 10 μF/16V (SRE)	CE04W1C100M
C403	254 4250 026	Electrolytic 100 μF/6.3V	CE04W0J101M
C404	253 3614 000	Ceramic 100pF/50V	CC45SL1H101J
C410	253 9030 060	BC Ceramic 0.01 μF/25V	CK45=1E103K
C405	254 4252 006	Electrolytic 10 μF/16V	CE04W1C100M
C406	253 9031 069	BC Ceramic 2700pF/25V	CK45=1E272K
C407	256 1034 018	Metalized 0.033 μF/50V	CF93A1H333J
C408	255 1120 042	Film 0.0022 μF/50V	CQ93M1H222J
C409	254 4260 032	Electrolytic 0.47 μF/50V	CE04W1HR47M
C411	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C412	254 4260 032	Electrolytic 0.47 μF/50V	CE04W1HR47M
C413	256 1034 047	Metalized 0.056 μF/50V	CF93A1H563J
C414	256 1034 005	Metalized 0.027 μF/50V	CF93A1H273J
C415	256 1034 005	Metalized 0.15 μF/50V	CF93A1H154J
C416	253 1179 071	Ceramic 390pF/50V	CK45B1H391K (DD-3)
C417	254 4252 019	Electrolytic 22 μF/16V	CE04W1C220M
C418	254 4260 016	Electrolytic 0.22 μF/50V	CE04W1HR22M
C419	253 1004 007	Ceramic 1000pF/50V	CK45B1H102K
C420	254 4250 026	Electrolytic 100 μF/6.3V	CE04W0J101M
C421	254 4254 006	Electrolytic 10 μF/16V	CE04W1C100M
C422	253 1063 006	Ceramic 5600pF/50V	CK45B1H562K
C423	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M
C424	254 4260 016	Electrolytic 0.22 μF/50V	CE04W1HR22M
C425	253 9030 060	BC Ceramic 0.01 μF/25V	CK45=1E103K
C426	254 4525 024	Electrolytic 47 μF/10V	CE04W1A470J
C427	255 1121 026	Film 0.015 μF/50V	CQ93M1H153J
C430	253 1004 007	Ceramic 1000pF/50V	CK45B1H102K
C450	253 1004 007	Ceramic 1000pF/50V	CK45B1H102K
C506,507	254 4255 704	Electrolytic 3300 μF/16V	CE04W1C332MC
C508	254 4260 003	Electrolytic 0.1 μF/50V	CE04W1H0R1M
C509,510	254 4254 051	Electrolytic 220 μF/16V	CE04W1C221M
C513	253 9036 006	BC Ceramic 0.1 μF/25V	CK45=1E104Z
C520	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M
C601	254 4250 026	Electrolytic 100 μF/6.3V	CE04W0J101M
C602	253 1024 003	Ceramic 0.01 μF/50V	CK45F1H103Z
C602,603	253 9036 006	BC Ceramic 0.1 μF/25V	CK45=1E104Z
C701	253 3596 005	Ceramic 3pF/50V	CC45SL1H030C
C702	253 4342 041	Ceramic 5pF/50V	CC45SL1H050C
C703	254 4250 039	Electrolytic 220 μF/6.3V	CE04W0J221J
C704	253 9031 027	BC Ceramic 0.1 μF/25V	CK45=1E104K
C705	253 9030 060	BC Ceramic 0.01 μF/25V	CK45=1E103K
C706	256 1034 034	Metalized 0.047 μF/50V	CF93A1H473J
C707	255 1120 026	Film 0.0015 μF/50V	CQ93M1H152J
C709	253 9031 027	BC Ceramic 0.1 μF/25V	CK45=1E104K
C901	254 4299 003	Electrolytic 100 μF/16V (SRE)	CE04W1C101M
C902	253 4350 004	Ceramic 680pF/50V	CC45SL1H681J

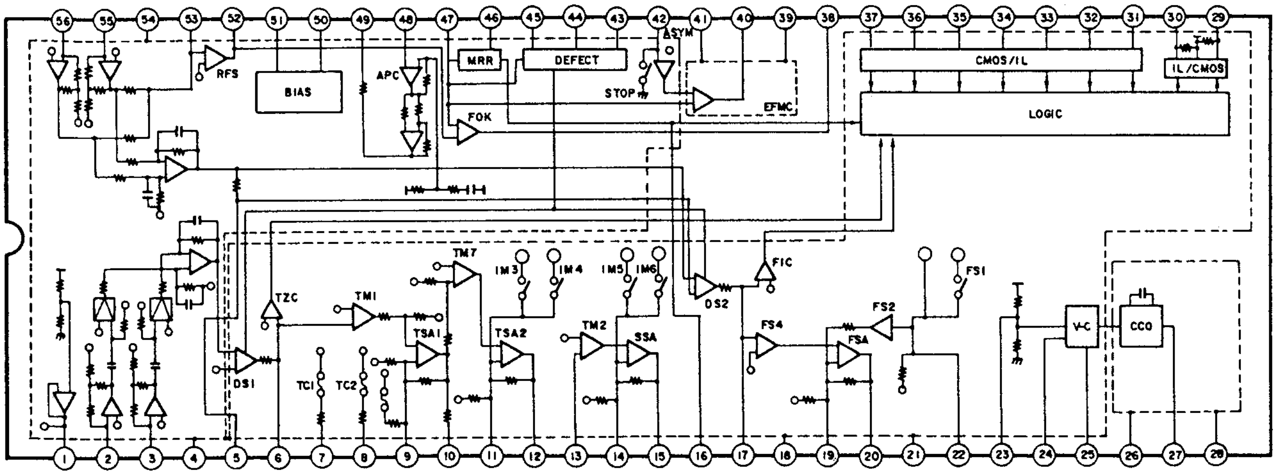
OTHERS PARTS GROUP				Q'ty
	—	(P.W. Board)		(1)
	212 5606 905	Tact Swtich		9
X601	399 0034 002	Ceramic Vibrator	CST4.00MG	1
X701	399 0036 013	X'tal (16.9344MHz)		1
	449 0055 302	LCD Holder		1
CB404	205 0343 058	5P Connector Base (KR-PH)		1
CN802	205 0321 054	5P Connector Base (RED)	Red	1
CB403	205 0343 061	6P Connector Base (KR-PH)		1
CB401,901	205 0343 074	7P Connector Base (KR-PH)		2
CB801	205 0375 000	10P Connector Base (KR-PH)		1
CB201	204 8284 022	15P System Socket		1
CB501	204 2429 003	7P System Socket		1
CN901	204 2312 042	7P KR-DA Connector Cord	ℓ=240	1
CN801	204 2225 016	10P KR-DA Connector Cord	ℓ=150	1
CN802	203 8172 021	5P KR-DS Connector Cord	ℓ=70	1
CB402	205 0343 087	8P Connector Cord (KR-PH)		1
CN501,502	203 4564 044	3P SCN-SON Connector Cord		2

SEMICONDUCTORS

● IC's

HA12158NT (IC401)

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RFS
BIAS
APC
MRR
DEFECT
ASYM
STOP
FOK
EFMC
CMOS/IL
IL/CMOS
LOGIC
TM7
IM3
IM4
IM5
IM6
FIC
FS1
TZC
TM1
DS2
FS2
TSA1
TSA2
TM2
SSA
FS4
FSA
V-C
CCO
DS1
TC1
TC2
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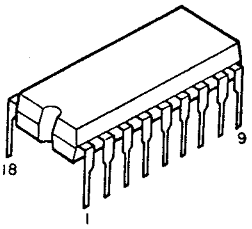
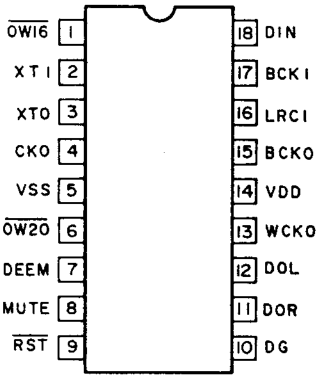
● Pin function table

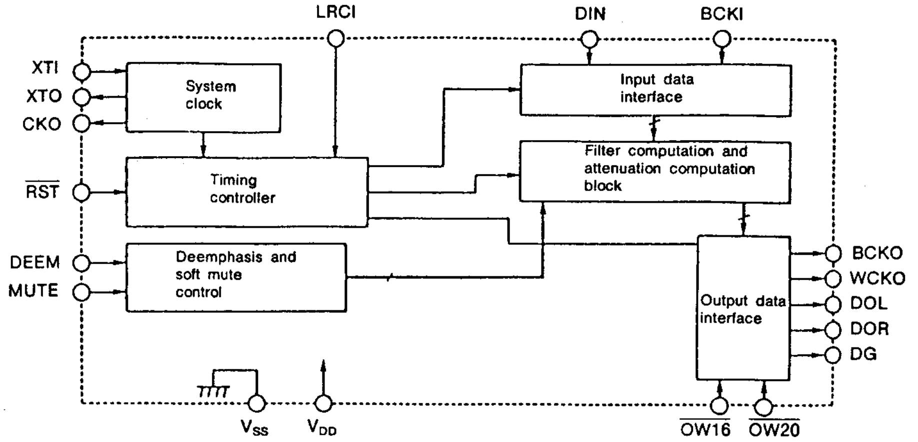
Pin No.	Symbol	I/O	Function
1	VREF	O	Reference voltage output
2	TR1	I	TR1 (I/V conversion amplifier) input
3	TR2	I	TR2 (I/V conversion amplifier) input
4	PG	GND	Preamplifier block ground
5	FH	O	Focus error hold signal output
6	TE	I/O	Track error signal output, TMI input
7	TG1	I	TG1 switch
8	TG2	I	TG2 switch
9	TS1⊖	I	TSA1 ⊖ input
10	TS1O	O	TSA1 output
11	TS2⊖	I	TSA2 ⊖ input
12	TS2O	O	TSA2 output
13	TM2	I	TM2 input
14	SS⊖	I	SSA ⊖ input
15	SSO	O	SSA output
16	MIRR	O	Mirror comparator output
17	FE	I/O	Focus error signal output, FS4 input
18	SG	GND	Servo block ground
19	FS⊖	I	SSA ⊖ input
20	FSO	O	FSA input
21	SVCC	Vcc	Servo block Vcc
22	FUD	O	Focus up/down voltage output
23	VCR	I/O	VCO reference voltage
24	PDIN	I	VCO control voltage input
25	FRA	O	VCO free-run frequency setting
26	VVcc	Vcc	VCO Vcc
27	VCO	O	VCO output
28	VGND	GND	VCO ground

Pin No.	Symbol	I/O	Function
29	COUT	O	Track count signal output
30	SENS	O	FZC and TZC signal output
31	XRST	I	Reset signal output
32	DIRC	I	Direct control signal output
33	XLT	I	Data transfer signal input
34	DATA	I	Data signal input
35	CLK	I	Data sync clock input
36	LMSW	I	Limit switch input
37	LDSW	I	Laser switch input
38	FOK	O	FOK comparator output
39	GEFM	GND	EFM comparator ground
40	EFMC	O	EFM comparator output
41	VEFM	Vcc	EFM comparator Vcc
42	DSLC	I	Data slice level control input
43	DFIN	I	Defect comparator input
44	DFO	O	Defect signal output
45	DFH	O	Defect hold signal output
46	MIRH	O	Error hold signal output
47	EFMI	I	EFM signal output
48	MD	I	APC amplifier input
49	LD	O	APC amplifier output
50	BYPS	O	Capacitor connection pin for ripple filter
51	ISET	O	Reference current setting
52	RFO	O	RFS output
53	RF⊖	I	RFS ⊖ input
54	PVcc	Vcc	Pre-block Vcc
55	RF1	I	RF1 (I/V conversion block) input
56	RF2	I	RF2 (I/V conversion block) input

SM5840CP (IC201)




$\overline{\text{OW16}}$ 1
XTI 2
XTO 3
CKO 4
VSS 5
$\overline{\text{OW20}}$ 6
DEEM 7
MUTE 8
$\overline{\text{RST}}$ 9
18 DIN
17 BCKI
16 LRCI
15 BCKO
14 VDD
13 WCKO
12 DOL
11 DOR
10 DG

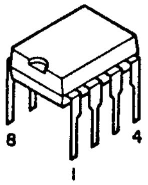

LRCI
DIN
BCKI
XTI
XTO
CKO
System clock
Input data interface
Filter computation and attenuation computation block
$\overline{\text{RST}}$
Timing controller
DEEM
MUTE
Deemphasis and soft mute control
Output data interface
BCKO
WCKO
DOL
DOR
DG
V_{SS}
V_{DD}
$\overline{\text{OW16}}$
$\overline{\text{OW20}}$

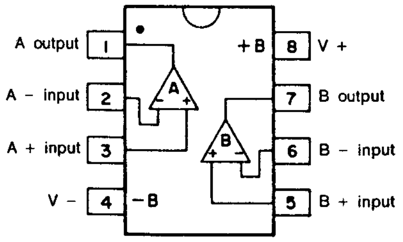
- Pin Description

Pin number DIP	Pin name	i/o	Function				
1	$\overline{\text{OW16}}$	ip	Selection pin 1 for number of output bits (NOTE) NS-ON : Noise shaper on NS-OFF : Noise shaper off	Setting		$\overline{\text{OW20}}$	
						H	L
				$\overline{\text{OW16}}$	H	18bit output (NS-ON)	20bit output (NS-ON)
					L	16bit output (NS-ON)	18bit output (NS-ON)
2	XTI	i	Oscillator input pin				
3	XTO	o	Oscillator input pin				
4	CKO	o	Oscillator output clock (Frequency is the same as XTI)				
5	Vss	—	Ground pin				
	(N.C)						
	(N.C)						
6	$\overline{\text{OW20}}$	ip	Selection pin 2 for number of output bits (NOTE) See the column of $\overline{\text{OW16}}$.	(When $\overline{\text{OW20}}$ is low level : 18 bits or 20 bits) (When $\overline{\text{OW20}}$ is high level : 18 bits or 16 bits)			
7	DEEM	ip	Deemphasis signal input	(When DEM is low level : Deemphasis is off) (When DEM is high level : Deemphasis is on)			
8	MUTE	ip	Mute signal input	(When MUTE is low level : Soft mute is off) (When MUTE is high level : Soft mute is on)			
9	$\overline{\text{RST}}$	ip	System reset (Initialization)				
10	DG	o	Deglitch output				
11	DOR	o	Right channel data output				
12	DOL	o	Left channel data output				
13	WCKO	o	Output word clock				
14	V_{DD}	—	Supply pin (5 V : Standard)				
	(N.C)						
	(N.C)						
15	BCKO	o	Output bit clock				
16	LRCI	ip	Clock of the input data sample rate (fs)				
17	BCKI	ip	Input bit clock				
18	DIN	ip	Input data				

i : Input pin ip : Input pin with pull-up resistor o : Output pin

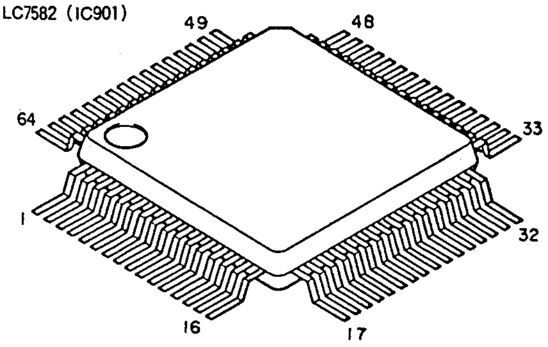
BA15218, RC4558
(IC205、206、301)




A output 1
A − input 2
A + input 3
V − 4
−B
+B
8 V +
7 B output
6 B − input
5 B + input
A
B

CD SECTION

LC7582 (IC901)


49
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1
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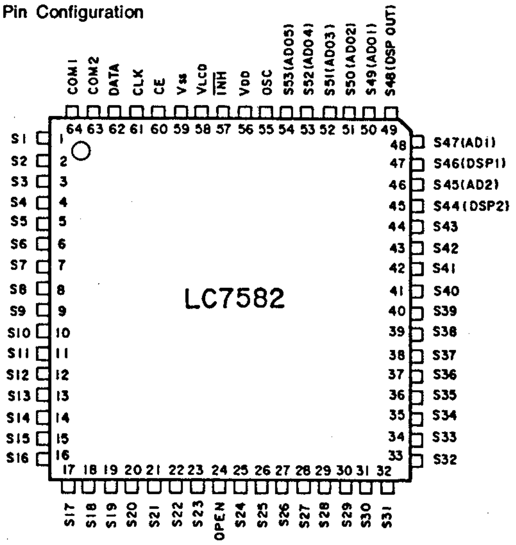
Pin Configuration


COM1
COM2
DATA
CLK
CE
Vss
VLCD
INH
VDD
OSC
S53(ADO5)
S52(ADO4)
S51(ADO3)
S50(ADO2)
S49(ADO1)
S48(DSP OUT)
64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49
S1 1
S2 2
S3 3
S4 4
S5 5
S6 6
S7 7
S8 8
S9 9
S10 10
S11 11
S12 12
S13 13
S14 14
S15 15
S16 16
LC7582
48 S47(AD1)
47 S46(DSP1)
46 S45(AD2)
45 S44(DSP2)
44 S43
43 S42
42 S41
41 S40
40 S39
39 S38
38 S37
37 S36
36 S35
35 S34
34 S33
33 S32
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
S17
S18
S19
S20
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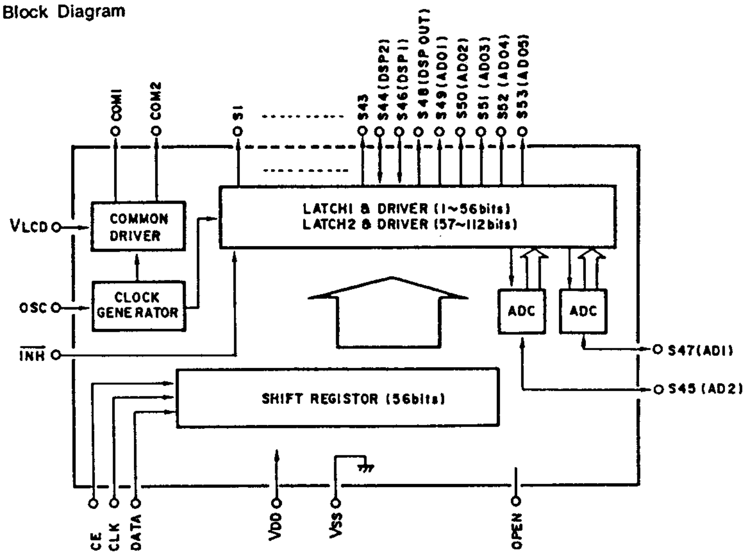
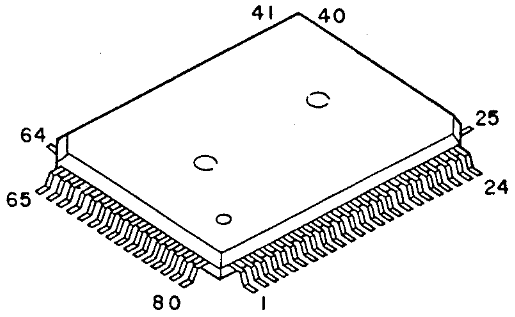
S22
S23
OPEN
S24
S25
S26
S27
S28
S29
S30
S31

Block Diagram


COM1
COM2
S1
S43
S44(DSP2)
S46(DSP1)
S48(DSP OUT)
S49(ADO1)
S50(ADO2)
S51(ADO3)
S52(ADO4)
S53(ADO5)
VLCD
OSC
INH
COMMON DRIVER
CLOCK GENERATOR
LATCH1 & DRIVER (1~56bits)
LATCH2 & DRIVER (57~112bits)
ADC
ADC
S47(AD1)
S45(AD2)
SHIFT REGISTOR (56bits)
CE
CLK
DATA
VDD
VSS
OPEN

Pin Description

S1~S13	: Segment output pins
S46 (DSP1), S44 (DSP2)	: Segment output or DSP input pins
S47 (AD1), S45 (AD2)	: Segment output or AD input pins
S48 (DSPOUT)	: Segment output or DSP output pins
S49~S53 (AD01~5)	: Segment output or AD output pins
COM1,2	: Common output pins (At 1/1 duty, only COM1 is used and COM2 is open)
V_{LCD}	: Pin for LCD bias voltage setting
OSC	: Oscillation pin
CE, CLK, DATA	: Input pins for serial data transfer
V_{SS}, V_{DD}	: Supply pins
$\overline{INH}$	: Display-off input pin (Valid only with the output driver. As a result, the transfer of serial data is possible while the display is off.)
OPEN	: No connection



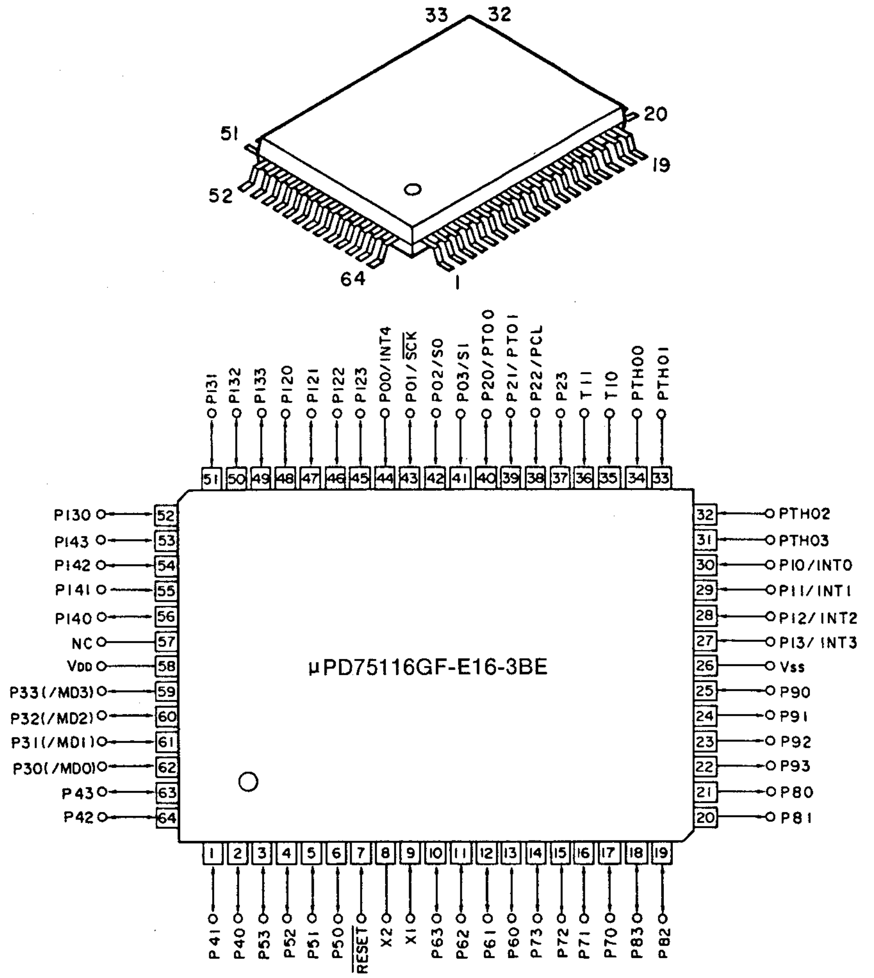
CXD2500AQ (IC701)

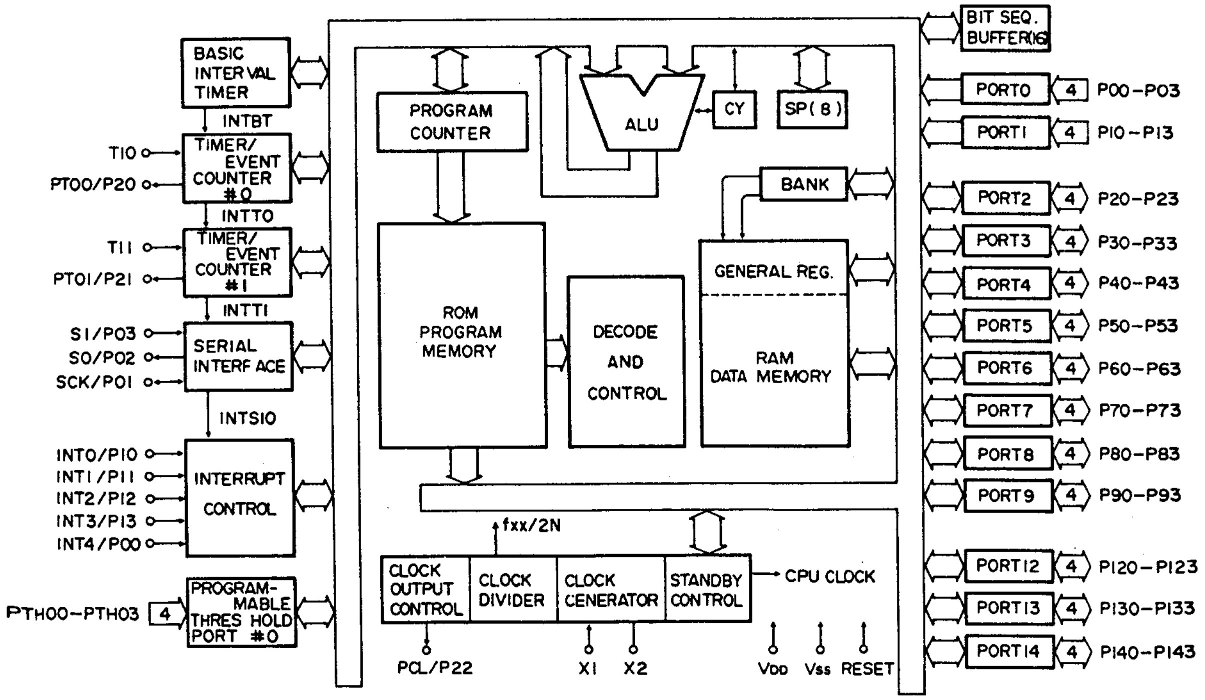
- CXD2500AQ Pin Function Table

Pin no.	Pin symbol	I/O		Pin description
1	FOK	I		Focus OK input pin. Used in SENS output and the servo auto sequencer.
2	FSW	O	Z,0	Output filter switching output of the spindle motor.
3	MON	O	1,0	On-off control output of the spindle motor.
4	MDP	O	1,Z,0	Servo control of the spindle motor.
5	MDS	O	1,Z,0	Servo control of the spindle motor.
6	LOCK	O	1,0	Samples GFS at 460 Hz. When GFS is "H", H is output. L is output when there is "L", 8 times in succession.
7	NC	—		
8	VCOO	O	1,0	Oscillation circuit output for analog EFM PLL.
9	VCOI	I		Oscillation circuit output for analog EFM PLL. f_{LOCK}=8.6436 MHz.
10	TEST	I		Test pin, always grounded.
11	PDO	O	1,Z,0	For charge pump used with analog EFM PLL.
12	Vss			Ground
13	NC	—		
14	NC	—		
15	NC	—		
16	VPCO	O	1,Z,0	PLL charge pump output used for vari-pitch.
17	VCKI	O		Clock input f_{CENTER} from the external VCO for varipitch equals 16.9344 MHz.
18	FILO	O	Analog	Filter output (slave = digital PLL) for master PLL.
19	FILI	I		Filter input for master PLL.
20	PCO	O	1,Z,0	Charge pump output for master PLL.
21	AVss			Analog ground.
22	CLTV	I		VCO control voltage input for master.
23	AV_{DD}			Analog supply (+5 V)
24	RF	I		EFM signal input
25	BIAS	I		Grounded
26	ASYI	I		Grounded
27	ASYO	O	1,0	EFM full-swing output. (L = Vss, H = V_{DD})
28	ASYE	I		Grounded
29	NC	—		
30	PSSL	I		Switching input for the audio data output mode. Serial output with "L" and parallel output with "H".
31	WDCK	O	1,0	D/A interface for 48-bit slot. Word clock f = 2Fs.
32	LRCK	O	1,0	D/A interface for 48-bit slot. LR clock f = Fs.
33	V_{DD}			Supply (+5 V)
34	DA16	O	1,0	DA16 (MSB) output when PSSL = 1. Serial data of the 48-bit slot when PSSL = 0. (2s' COMP, MSB first.)
35	DA15	O	1,0	DA15 output when PSSL = 1. Bit clock of the 48-bit slot when PSSL = 0.
36	DA14	O	1,0	DA14 output when PSSL = 1. Serial data of the 64-bit slot when PSSL = 0. (2s' COMP, LSB first.)
37	DA13	O	1,0	DA13 output when PSSL = 1. Bit clock of the 64-bit slot when PSSL = 0.
38	DA12	O	1,0	DA12 output when PSSL = 1. LR clock of the 64-bit slot when PSSL = 0.
39	DA11	O	1,0	DA11 output when PSSL = 1. GTOP output when PSSL = 0.
40	DA10	O	1,0	DA10 output when PSSL = 1. XUGF output when PSSL = 0.
41	DA09	O	1,0	DA09 output when PSSL = 1. XPLCK output when PSSL = 0.
42	DA08	O	1,0	DA08 output when PSSL = 1. GFS output when PSSL = 0.
43	DA07	O	1,0	DA07 output when PSSL = 1. RFCK output when PSSL = 0.
44	DA06	O	1,0	DA06 output when PSSL = 1. C2PO output when PSSL = 0.
45	DA05	O	1,0	DA05 output when PSSL = 1. XRAOF output when PSSL = 0.
46	DA04	O	1,0	DA04 output when PSSL = 1. MNT3 output when PSSL = 0.
47	DA03	O	1,0	DA03 output when PSSL = 1. MNT2 output when PSSL = 0.
48	DA02	O	1,0	DA02 output when PSSL = 1. MNT1 output when PSSL = 0.
49	DA01	O	1,0	DA01 output when PSSL = 1. MNT0 output when PSSL = 0.
50	APTR	O	1,0	Control output for aperture correction. "H" with Rch.
51	APTL	O	1,0	Control output for aperture correction. "H" with Lch.
52	Vss			Ground
53	XTAI	I		16.9344 MHz x'tal oscillator circuit input. Or 33.8688 MHz input.
54	XTAO	O	1,0	16.9344 MHz x'tal oscillator circuit input.
55	XTSL	I		X'tal selection input pin. "L" when the x'tal is 16.9344 MHz and "H" when the x'tal is 33.8688 MHz.
56	FSTT	O	1,0	2/3 frequency division output of pins 53 and 54. Does not change with vari-pitch.
57	C4M	O	1,0	4.2336 MHz output. Changes simultaneously when varypitch is applied.
58	C16M	O	1,0	16.9344 MHz output. Changes simultaneously when varypitch is applied.
59	MD2	I		Digital-Out on/off control. H when on and L when off.
60	DOUT	O	1,0	Digital-out output pin.
61	EMPH	O	1,0	When the playback disc has emphasis, "H" is output. "L" is output when there is no emphasis.
62	WFCK	O	1,0	WFCK (Write Frame Clock) output.
63	SCOR	O	1,0	"H" output when either sub code sync S0 or S1 is detected.
64	SBSO	O	1,0	Sub P through W serial output.
65	EXCK	I		Clock input for SBSO read-out use.
66	SQSO	O	1,0	SubQ 80 bit and PCM peak level data 16-bit output.
67	SQCK	I		Clock input for SQSO read-out use.
68	MUTE	I		Mute L is cancelled with H.
69	SENS	—	1,Z,0	SENS output. Output to CPU.
70	XRST	I		System set. Reset with "L".
71	DATA	I		Serial data input from CPU.
72	XLAT	I		Latch input from CPU. Latches serial data on the fall.
73	V_{DD}			Supply (+5 V)
74	CLOK	I		Serial data transfer clock input from CPU.
75	SEIN	I		Sense input from SSP.
76	CNIN	O		Count signal input of number of track jumps.
77	DATO	O		Serial data output to SSP.
78	XLTO	O	1,0	Serial data latch output to SSP. Latches on the fall.
79	CLKO	O	1,0	Serial data transfer clock output to SSP.
80	MIRR	I		Mirror signal input. Used in jumps of 128 tracks or more with an auto sequencer.

CD SECTION

μPD75116GF-E16-3BE (IC601)


33
32
20
19
51
52
64
1
μPD75116GF-E16-3BE
P131 P132 P133 P120 P121 P122 P123 P00/INT4 P01/SCK P02/SO P03/SI P20/PT00 P21/PT01 P22/PCL P23 T11 T10 PTH00 PTH01
P130
P143
P142
P141
P140
NC
VDD
P33(/MD3)
P32(/MD2)
P31(/MD1)
P30(/MD0)
P43
P42
PTH02
PTH03
P10/INT0
P11/INT1
P12/INT2
P13/INT3
Vss
P90
P91
P92
P93
P80
P81
P41 P40 P53 P52 P51 P50 RESET X2 X1 P63 P62 P61 P60 P73 P72 P71 P70 P83 P82

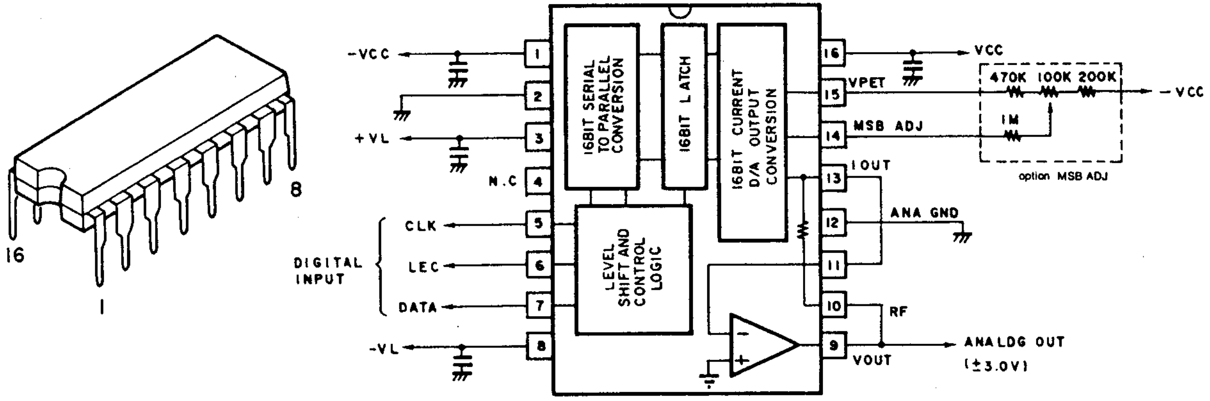

BASIC INTERVAL TIMER
INTBT
T10
PT00/P20
TIMER/EVENT COUNTER #0
INTT0
T11
PT01/P21
TIMER/EVENT COUNTER #1
INTT1
SI/P03
SO/P02
SCK/P01
SERIAL INTERFACE
INTSIO
INT0/P10
INT1/P11
INT2/P12
INT3/P13
INT4/P00
INTERRUPT CONTROL
PTH00-PTH03
4
PROGRAMMABLE THRES HOLD PORT #0
PROGRAM COUNTER
ALU
CY
SP(8)
BANK
ROM PROGRAM MEMORY
DECODE AND CONTROL
GENERAL REG.
RAM DATA MEMORY
fxx/2N
CLOCK OUTPUT CONTROL
CLOCK DIVIDER
CLOCK GENERATOR
STANDBY CONTROL
CPU CLOCK
PCL/P22
X1
X2
VDD
Vss
RESET
BIT SEQ. BUFFER(16)
PORT0 4 P00-P03
PORT1 4 P10-P13
PORT2 4 P20-P23
PORT3 4 P30-P33
PORT4 4 P40-P43
PORT5 4 P50-P53
PORT6 4 P60-P63
PORT7 4 P70-P73
PORT8 4 P80-P83
PORT9 4 P90-P93
PORT12 4 P120-P123
PORT13 4 P130-P133
PORT14 4 P140-P143

Pin	Pin name	Signal name	I/O	Active	Initial	Description
1	P41	NC	O	–	L	Open
2	P40	POSPRES	O	H	L	Reset signal (10 ms) (with vary on) for DPS
3	P53	NC	O	–	L	Open
4	P52	NC	O	–	L	Open
5	P51	PS9	O	H	L	Diode key scan signal
6	P50	PS8	O	H	L	Momentary key scan signal 8
7	$\overline{\text{RESET}}$	RESET	I			Microprocessor reset pin.
8	X2	μCONCLK	O			Microprocessor clock
9	X1	μCONCLK	I			Microprocessor clock
10	P63	PKS7	O	H	L	Momentary key scan signal 7
11	P62	PKS6	O	H	L	Momentary key scan signal 6
12	P61	PKS5	O	H	L	Momentary key scan signal 5
13	P60	PKS4	O	H	L	Momentary key scan signal 4
14	P73	PKS3	O	H	L	Momentary key scan signal 3
15	P72	PKS2	O	H	L	Momentary key scan signal 2
16	P71	PKS1	O	H	L	Momentary key scan signal 1
17	P70	PKS0	O	H	L	Momentary key scan signal 0
18	P83	NC	O	–	L	Open
19	P82	NC	O	–	L	Open
20	P81	NC	O	–	L	Open
21	P80	NC	O	–	L	Open
22	P93	PTINIT	O	H	L	Test pin
23	P92	PTEDIT	O	H	L	Test pin
24	P91	PTSARCH	O	H	L	Test pin
25	P90	PDOUT	O	H	L	Digital output control signal
26	Vss	Vss				Ground potential pin
27	P13/INT3	NC	I	–	H	Pull-up
28	P12/INT2	PGFS	I	H	L	Rotation sync signal input from DPS.
29	P11/INT1	PSCOR	I	↓↑	L	Sub code sync signal input.
30	P10/INT0	PAFSI	I	–	H	Auto function real signal input.
31	PTH03	PKR1	I	H	L	Key return
32	PTH02	PKR2	I	H	L	Key return

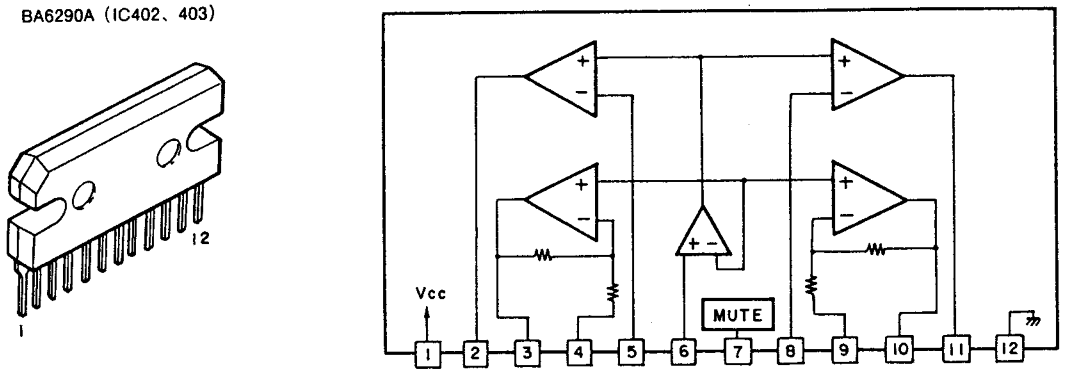
Pin	Pin name	Signal name	I/O	Active	Initial	Description
33	PTH01	PKR3	I	H	L	Key return
34	PTH00	PKR4	I	H	L	Key return
35	T10	PSENSE	I	–	H	Servo state detection signal
36	T11	NC	I	–	H	Ground
37	P23	PSVCDAT	O	–	H	Servo control signal and data for D.F.
38	P22/PCL	PSVCLT	O	LP	H	Servo control signal latch.
39	P21/PT01	PSVCCLK	O	–	H	Servo control signal and clock for D.F.
40	P20/PT00	PLASER	O	L	H	Laser diode on/off control.
41	P03/SI	PSUBQ	I	–	H	Sub code data input.
42	P02/SO	NC	O	–	–	Open
43	P01/$\overline{\text{SCK}}$	PSQCK	O	–	H	Clock for sub code reading.
44	P00/INT4	PREM	I	↑↓	L	Remote control signal input.
45	P123	PDFLT	O	LP	H	Latch signal for digital filter.
46	P122	PAMUT	O	H	H	Audio mute control signal.
47	P121	PEMP	O	L	H	Signal with emphasis control.
48	P120	PDIRC	O	LP	H	Servo control signal.
49	P133	PMVCL	O	L	H	Disc tray drive signal.
50	P132	PMVOP	O	L	H	Disc tray drive signal.
51	P131	PDMUT	O	H	H	Mute output for LSI.
52	P130	PAFSO	O	–	H	Auto function serial output.
53	P143	PFOK	I	H	L	FOCUS OK signal input.
54	P142	PSWOPN	I	L	H	Disc tray open position detection.
55	P141	PSWCLS	I	L	L	Disc tray close position detection.
56	P140	PSWPMD	I	L	–	Pickup inner track position detection.
57	NC	NC				Open
58	Vdd	Vdd				Positive voltage supply pin. (+5 V)
59	P33	PLCDOF	O	L	L	Display-off output signal for LCD driver.
60	P32	PLCDCE	O	H	L	Latch signal for LCD driver.
61	P31	PLCDCLK	O	–	L	Clock for LCD driver.
62	P30	NC	O	–	L	Open
63	P43	NC	O	–	L	Open
64	P42	PLCDDAT	O	–	L	Data for LCD driver.

LP = LOW pulse

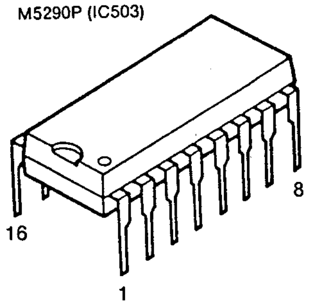
PCM61P-L (IC203、204)

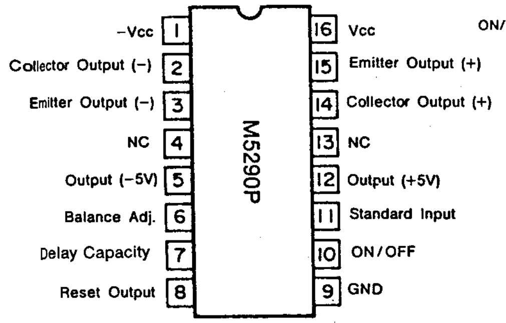

16
1
8
-VCC
+VL
N.C
DIGITAL INPUT
CLK
LEC
DATA
-VL
16BIT SERIAL TO PARALLEL CONVERSION
16BIT LATCH
16BIT CURRENT D/A OUTPUT CONVERSION
LEVEL SHIFT AND CONTROL LOGIC
VCC
VPET
MSB ADJ
IOUT
ANA GND
RF
VOUT
ANALOG OUT
(±3.0V)
470K
100K
200K
1M
-VCC
option MSB ADJ
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

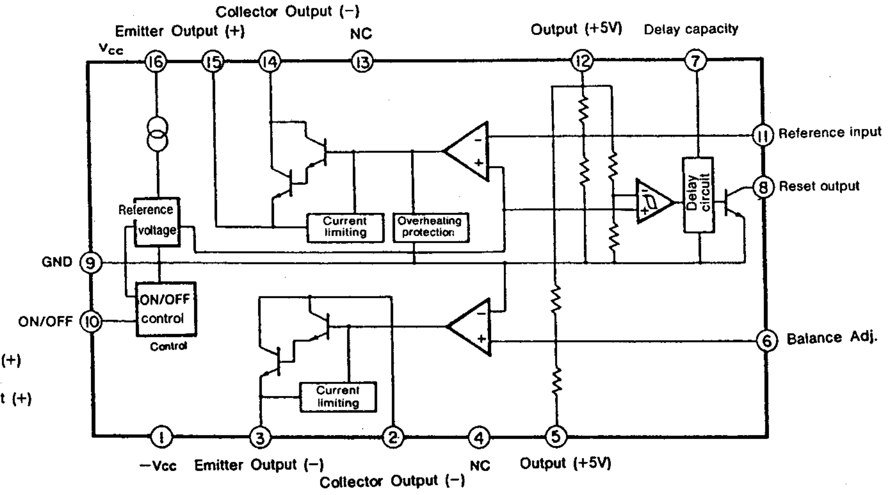
BA6290A (IC402、403)


12
1
Vcc
MUTE
1
2
3
4
5
6
7
8
9
10
11
12

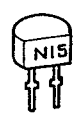
M5290P (IC503)




M5290P
-Vcc 1
Collector Output (-) 2
Emitter Output (-) 3
NC 4
Output (-5V) 5
Balance Adj. 6
Delay Capacity 7
Reset Output 8
16 Vcc
15 Emitter Output (+)
14 Collector Output (+)
13 NC
12 Output (+5V)
11 Standard Input
10 ON/OFF
9 GND

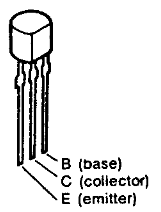

Collector Output (-)
Emitter Output (+)
NC
Output (+5V)
Delay capacity
Vcc
Reference input
Reset output
Balance Adj.
GND
ON/OFF
Reference voltage
ON/OFF control
Control
Current limiting
Overheating protection
Delay circuit
Current limiting
-Vcc
Emitter Output (-)
Collector Output (-)
NC
Output (+5V)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

- IC PROTECTOR ICP-N15 (IC501, 502)

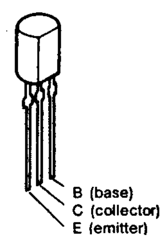


● Transistors

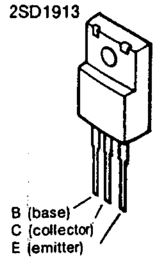
2SA1015 (GR)


B (base)
C (collector)
E (emitter)

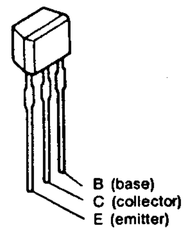
2SD562 (C), BC369
2SD468 (C), BC368


B (base)
C (collector)
E (emitter)

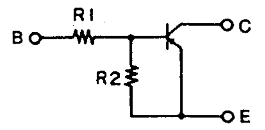
2SB1274
2SD1913


B (base)
C (collector)
E (emitter)

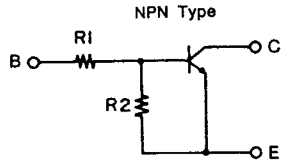
DTA114ES PNP Type
DTC114ES } NPN Type
DTC144ES


B (base)
C (collector)
E (emitter)

PNP Type



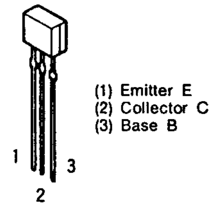
NPN Type



	R1	R2
DTA114ES	10k ohm	10k ohm

	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm
DTC314TS	10k ohm	−

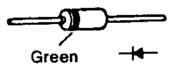
DTC314TS


(1) Emitter E
(2) Collector C
(3) Base B
1
2
3

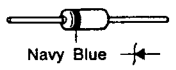
● Diodes (included LED)

1SS270A

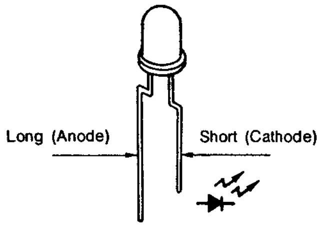
1SR139-200



HZS6B-2

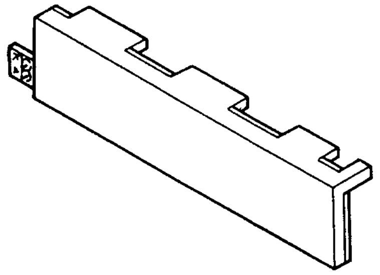


SLR-34MC70F120G (Green)

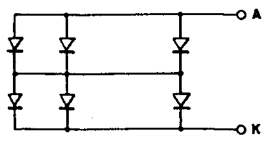

Long (Anode)
Short (Cathode)

● LED Ass'y

Part No.: 3939493002
(LE901)



- Wiring Diagram

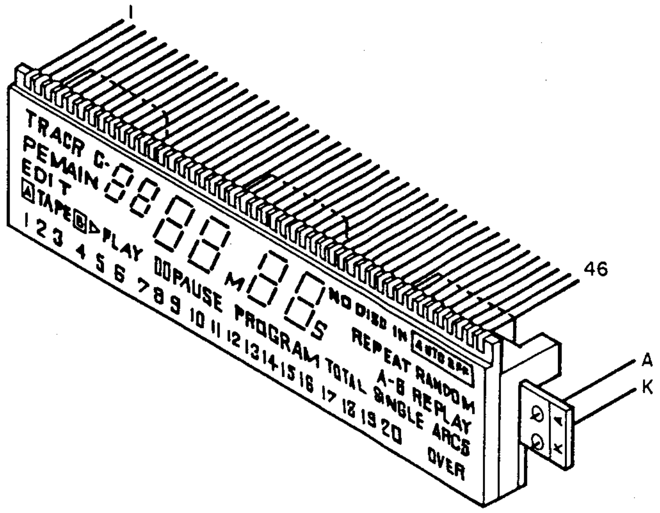


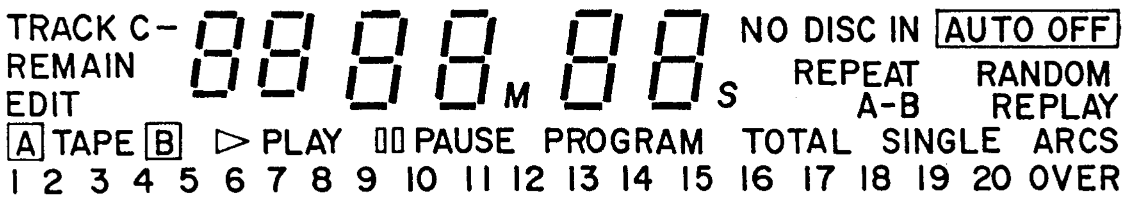
2 in series, 22 parallel = 44 chips

CD SECTION

- **LCD Ass'y (8155JPH)**

Part No.: 3934105007

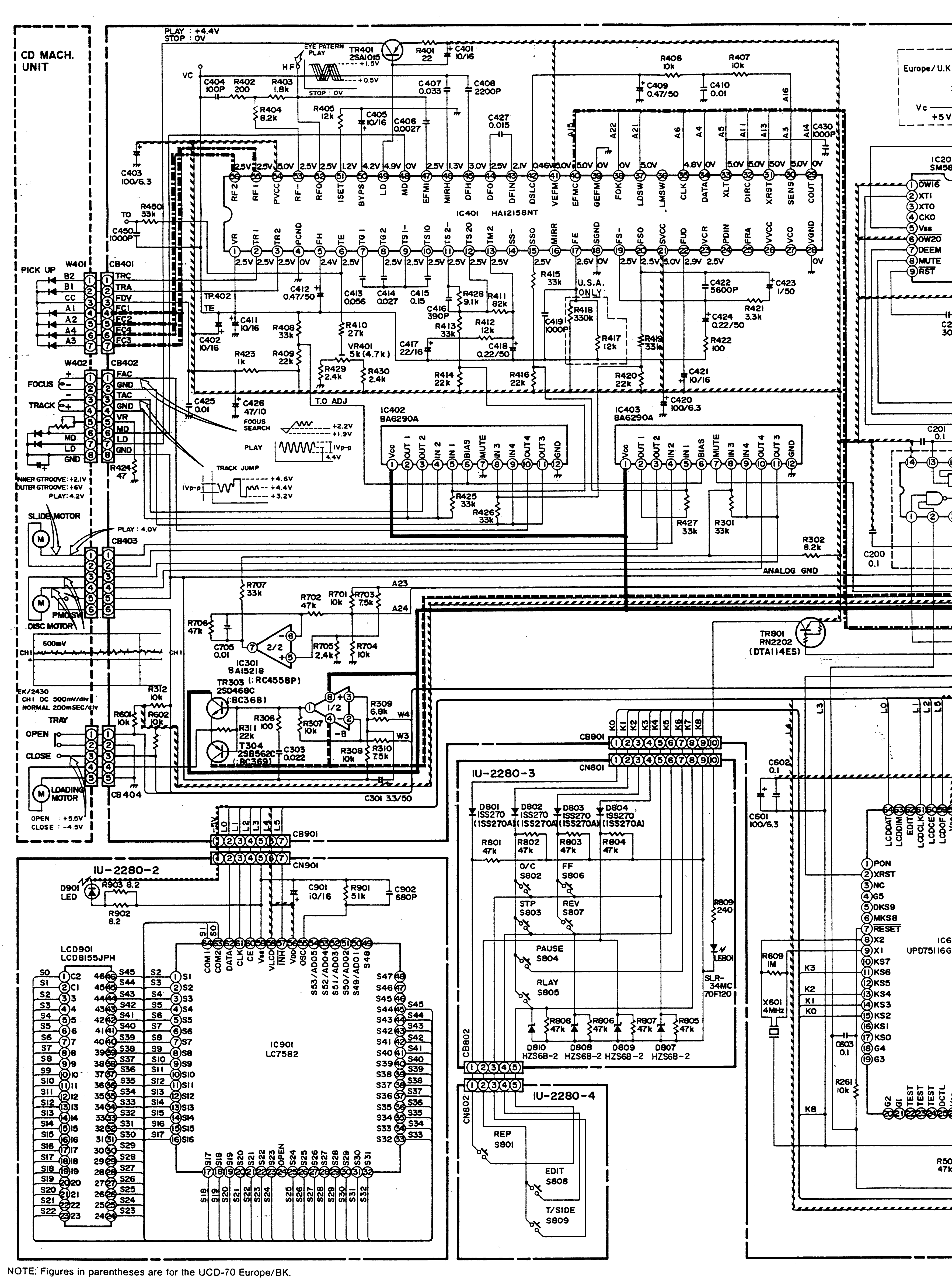



TRACK C-
REMAIN
EDIT
M
S
NO DISC IN
AUTO OFF
REPEAT
RANDOM
A-B
REPLAY
A TAPE B
▷ PLAY
▯▯ PAUSE
PROGRAM
TOTAL
SINGLE
ARCS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 OVER

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
COM1	–	COM	6	PAUSE	4	B	2	TRACK	A	C-	1f	1a	1b	2d	2a	2g	3d	3e	3a	3b	4e	4f	4b
COM2	COM	–	5	PLAY	3	TAPE	1	REMAIN	EDIT	1d	1e	1g	1c	2e	2f	2b	2c	3f	3g	3c	4d	4a	4g

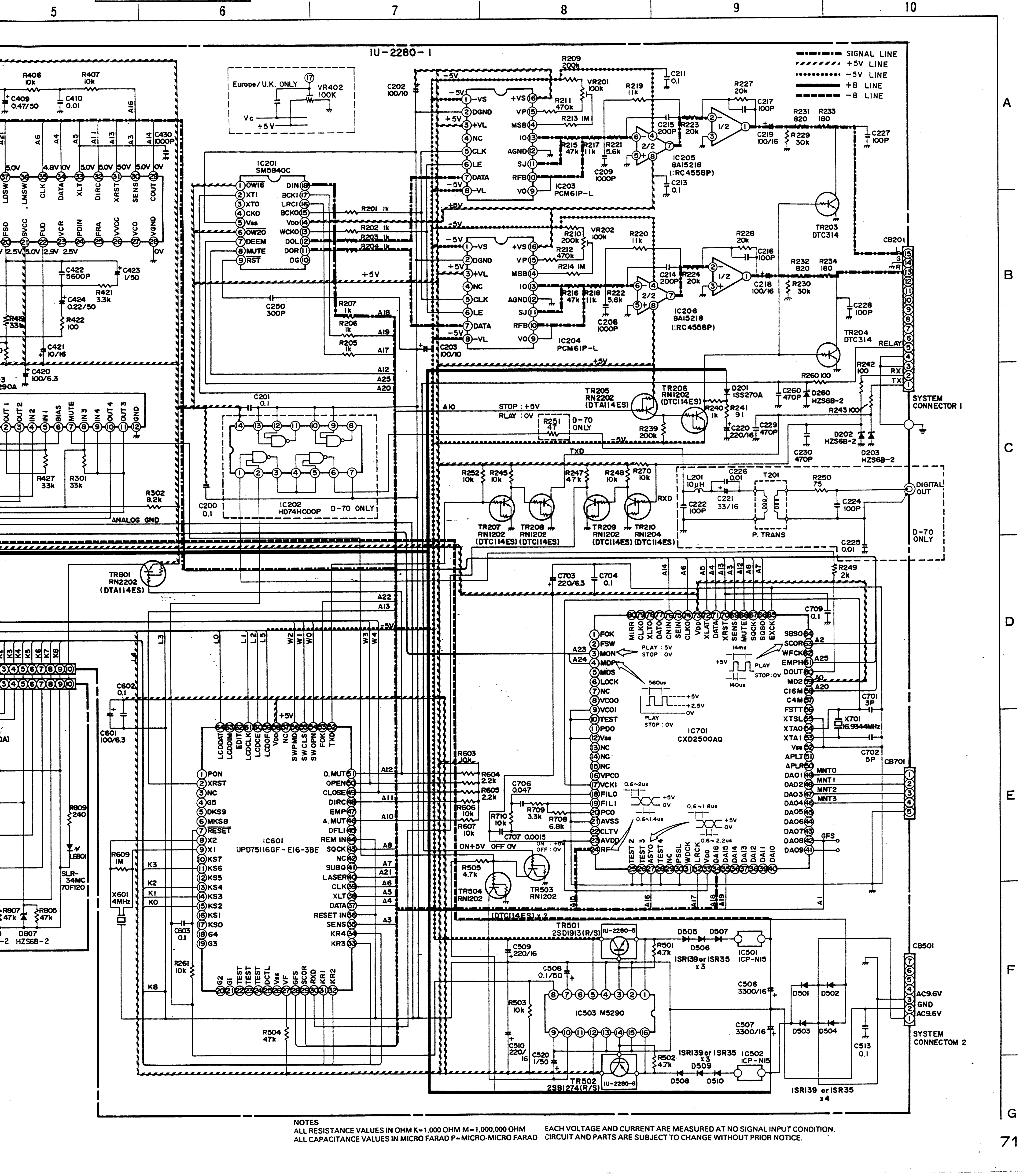
NO.	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
COM1	M	TOTAL	5e	5f	5a	5c	6f	6a	6b	17	B	DISC	IN	SINGLE	ARCS	RANDOM	AUTO	20	16	14	12	10	8
COM2	4c	PROGRAM	5d	5g	5b	6d	6e	6g	6c	S	A-	NO	REPEAT	18	OVER	REPLAY	OFF	19	15	13	11	9	7

SCHEMATIC DIAGRAM


2
3
4
5
6
CD MACH. UNIT
PICK UP
W401
CB401
TRC
TRA
FDV
FC1
FC2
FC4
FC3
W402
CB402
FOCUS
TRACK
FAC
GND
TAC
VR
MD
LD
INNER GTROOVE: +2.1V
OUTER GTROOVE: +6V
PLAY: 4.2V
SLIDE MOTOR
PLAY: 4.0V
CB403
PMD SW
DISC MOTOR
600mV
CH1
TEK/2430
CH1 DC 500mV/div
NORMAL 200mSEC/div
TRAY
OPEN
CLOSE
LOADING MOTOR
OPEN : +5.5V
CLOSE : -4.5V
CB404
PLAY : +4.4V
STOP : 0V
EYE PATTERN PLAY
TR401 2SA1015
HF
VC
IC401 HA12158NT
IC402 BA6290A
IC403 BA6290A
T.O ADJ
FOCUS SEARCH
PLAY
TRACK JUMP
U.S.A. ONLY
ANALOG GND
IC301 BA15218 (:RC4558P)
TR303 2SD468C (:BC368)
T304 2SB562C (:BC369)
TR801 RN2202 (DTA114ES)
CB801
CN801
IU-2280-3
D801 1SS270 (1SS270A)
D802 1SS270 (1SS270A)
D803 1SS270 (1SS270A)
D804 1SS270 (1SS270A)
O/C S802
FF S806
STP S803
REV S807
PAUSE S804
PLAY S805
LE801 SLR-34MC 70F120
D810 HZS6B-2
D808 HZS6B-2
D809 HZS6B-2
D807 HZS6B-2
CB802
CN802
IU-2280-4
REP S801
EDIT S808
T/SIDE S809
CB901
CN901
IU-2280-2
D901 LED
LCD901 LCD8155JPH
IC901 LC7582
Europe/U.K.
+5V
IC201 SM58
IC601 UPD75116G
X601 4MHz
R609 1M
C601 100/6.3
C602 0.1
PON
XRST
NC
G5
DKS9
MKS8
RESET
X2
X1
KS7
KS6
KS5
KS4
KS3
KS2
KS1
KS0
G4
G3
C201 0.1
C200 0.1
R302 8.2k

NOTE: Figures in parentheses are for the UCD-70 Europe/BK.

SCHEMATIC DIAGRAM


5
6
7
8
9
10
A
B
C
D
E
F
G
1U-2280-1
SIGNAL LINE
+5V LINE
-5V LINE
+B LINE
-B LINE
Europe/U.K. ONLY
VR402 100K
IC201 SM5840C
IC202 HD74HC00P
D-70 ONLY
IC203 PCM61P-L
IC204 PCM61P-L
IC205 BA15218 (:RC4558P)
IC206 BA15218 (:RC4558P)
TR203 DTC314
TR204 DTC314
TR205 RN2202 (DTA114ES)
TR206 RN1202 (DTC114ES)
D201 1SS270A
D260 HZS6B-2
D202 HZS6B-2
D203 HZS6B-2
CB201
RELAY
RX
TX
SYSTEM CONNECTOR 1
STOP : +5V
RLAY : 0V
DIGITAL OUT
T201
P. TRANS
D-70 ONLY
TR207 RN1202 (DTC114ES)
TR208 RN1202 (DTC114ES)
TR209 RN1202 (DTC114ES)
TR210 RN1204 (DTC114ES)
TR801 RN2202 (DTA114ES)
IC601 UPD75116GF-E16-3BE
X601 4MHz
IC701 CXD2500AQ
X701 16.9344MHz
CB701
MNT0
MNT1
MNT2
MNT3
TR503 RN1202
TR504 RN1202
(DTC114ES) x 2
TR501 2SD1913(R/S)
TR502 2SB1274(R/S)
1U-2280-5
1U-2280-6
IC501 ICP-N15
IC502 ICP-N15
IC503 M5290
1SR139 or 1SR35 x3
1SR139 or 1SR35 x4
CB501
AC9.6V
GND
AC9.6V
SYSTEM CONNECTOM 2
D807 HZS6B-2
LE801 SLR-34MC 70F120
ANALOG GND

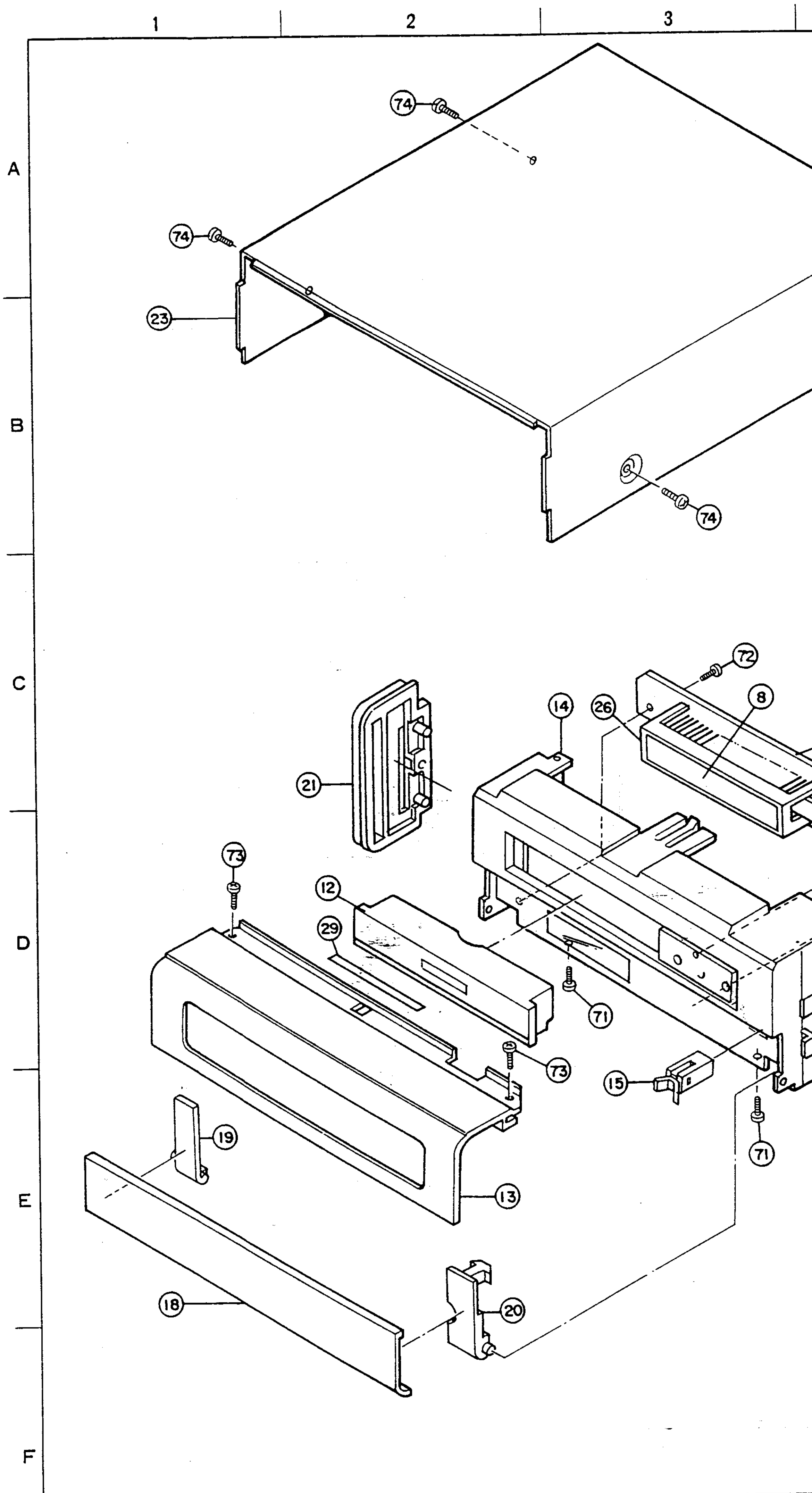
NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD

EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

CD SECTION

EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	411 1099 139	Chassis		1
◉ 2	105 0973 225	Rear Panel		1
3	104 0253 010	Foot Ass'y		4
◉ 4	415 9016 019	P.C.B Holder		2
5	—	—		
◉ 6	1U- 2280 A	CD Unit Ass'y		1^{S}
6-1	—	Main Unit		(1)
6-2	—	LCD Unit		(1)
6-3	—	Tact Switch Unit		(1)
6-4	—	Tact Switch Unit		(1)
7	—	—		
◉ 8	393 4105 007	LCD Ass'y	LC901	1
9	254 4255 704	Chemicon 3300µF/16V	C506,507	2
◉ 10	337 0015 007	CD Mech. Unit		1
11	103 1469 101	Mech.Holder (A)		3
12	146 1283 216	Loader Panel (C) Ass'y		1
◉ 13	144 2134 041	Front Panel		1
14	103 1471 335	Inner Panel Ass'y		1
15	435 0113 009	Latch (Y3Y18)		1
16	143 0742 102	Lens		1
17	113 1458 119	Control Button		1
18	144 2133 110	Trap Door		1
◉ 19	401 0126 200	Door Hinge (L)		1
◉ 20	401 0127 209	Door Hinge (R)		1
◉ 21	146 1279 110	Side Panel (L) Ass'y		1
◉ 22	146 1281 111	Side Panel (R) Ass'y		1
◉ 23	102 0478 132	Top Cover		1
24	513 1863 056	Rating Sheet		1
25	262 1456 206	µPD75116GF-E16-3BE	µ-Com	1
◉ 26	449 0055 302	LCD Holder		1
27	204 2429 003	7P System Socket	CB501	1
28	204 8284 022	15P System Socket	CB201	1
◉ 29	122 0146 002	Himeron Sheet	Put on F/Panel	1
★ 30	513 1513 005	Laser Caution	Europe model only	1
★ 31	513 0985 003	Inst. Label	Europe model only	2
★ 32	461 0577 068	Rubber Sheet		1
SCREWS				Q'ty
71	473 7002 034	Tapping Screw (S) 3X6	Black	19
72	473 7500 015	Tapping Screw (P) 3X8		6
73	473 7002 021	Tapping Screw (S) 3X8	Black	2
74	473 7007 000	Tapping Screw (S) 4X8	Black	4
76	473 7500 044	Tapping Screw (P) 3X8	Black	2
77	473 7015 018	Tapping Screw (S) 3X8	Black for GND	1
78	425 0232 006	Adjust Washer	t0.3 Black	1
79	425 0232 019	Adjust Washer	t0.5 Clear	1
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				Q'ty
◉ 101	505 0154 082	Cabinet Cover	600X600	1
◉ 102	—	—		
◉ 103	503 0980 001	Cushion		2
◉ 104	501 1560 013	Sleeve Carton		1
◉ 105	GEN 1785	Envelope Sub Ass'y		1^{S}
105-1	505 0178 000	:Poly Cover	255X380	(1)
105-2	511 2224 009	Inst. Manual		(1)
105-3	511 2264 001	Inst. Manual (3)		(1)
106	GEN 1789	Acc. Carton Sub Ass'y		1^{S}
◉ 106-1	501 9195 008	Accessory Carton		(1)
◉ 106-2	231 0922 009	Loop Antena		(1)
◉ 106-3	395 0019 025	FM Ant. Ass'y		(1)
◉ 106-4	529 0072 005	FM AntAdaptor		(1)
◉ 106-5	399 0144 002	Remote Control	RC-142	(1)
◉ 106-6	204 2483 007	7P Systen Connector Cord		(1)
◉ 106-7	204 6318 013	15P System Connector Cord		(1)
◉ 107	513 1389 006	Control Card Base		1
◉ 108	513 1349 004	Thermal Carbon Film		1



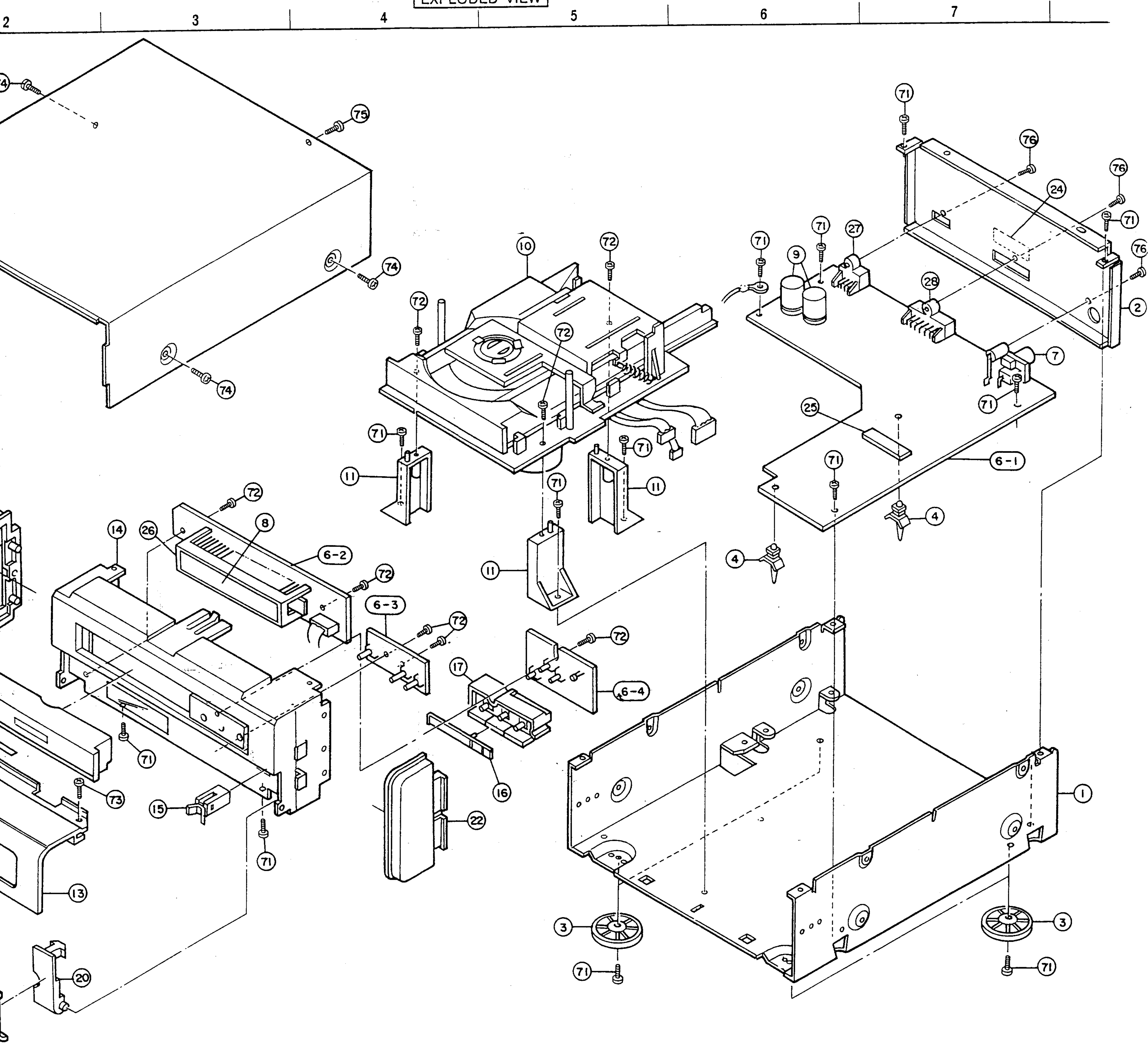
NOTE FOR PARTS LIST

- Part indicated with the m
in some case supplying
- When ordering of part,
- Ordering part without s
- Part indicated with the

WARNING:
Parts marked with this sy
Use ONLY replacement pa

G

EXPLODED VIEW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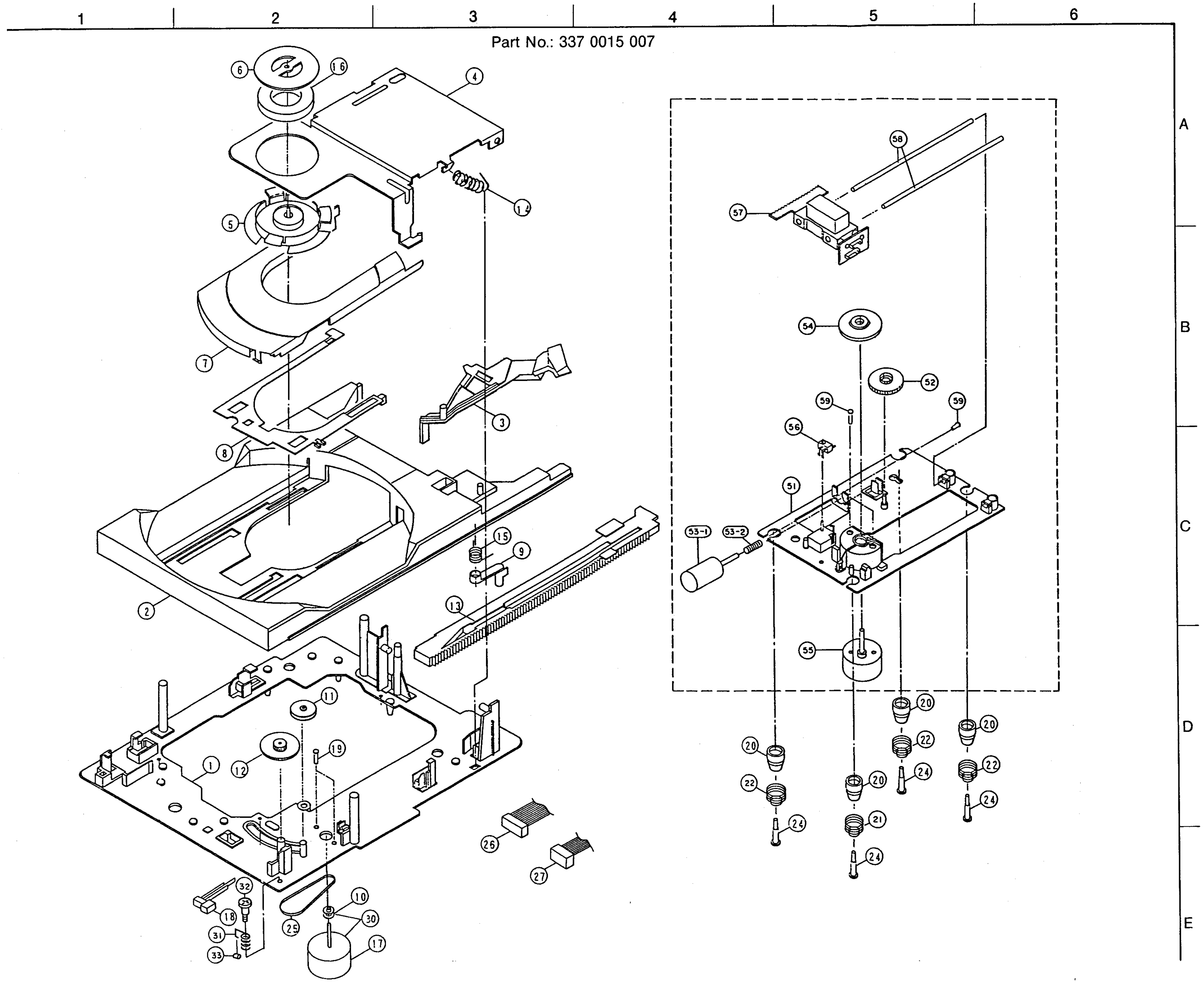
NOTE FOR PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

DISASSEMBLY OF CD MECHANISM

Part No.: 337 0015 007



CD MECH. EXPLODED VIEW OF PARTS LIST : 337 0015 007

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	9KA 81A2 95	Loading Plate OS		1
2	9KA 81G9 73	Tray 201		1
3	9KA 81G9 74	Switch Lever		1
4	9KA 81P4 62	Clamper Arm		1
5	9KA 81G9 75	Clamper		1
6	9KA 81P4 63	Clamper Plate		1
7	9KA 81G9 76	Disc Holder		1
8	9KA 81G9 77	Lifter Cam		1
9	9KA 81G9 78	Latch		1
10	—	Motor Pully		1
11	9KA 81G1 22	Pully Gear		1
12	9KA 81G1 23	Gear		1
13	9KA 81G5 81	Rack 11B		1
14	9KA 81S0 59	Clamp Spring		1
15	9KA 81S0 60	Latch Spring		1
16	9KA 82G0 57	Clamper Magnet		1
◉ 17	—	Motor MDN-4RA3EZAS		1
18	9KS 01W1 32	Leaf Switch SWLSC122343AU	Loading Limit Switch SW	1
19	9KM 20S0 04	M2×4 Screw		2
20	9KA 82G0 56	Floating Rubber M3		4
21	9KA 81S0 66	Floating Spring SPM3A		1
22	9KA 81S0 67	Floating Spring SIM3B		3
23	—	—		
24	9KA 81H0 85	Floating Screw C		4
25	9KA 82G1 80	Floating Belt (Square)	1.4×18.1	1
26	9KA 82G1 23	Connector Wire 6P	CNW6PM3	1
27	9KA 82G1 24	Connector Wire 5P	CNW5PM3	1
28	—	—		
29	—	—		
◉ 30	9KA 81A3 08	Loading Motor Ass'y	with 10, 17	1
31	9KA 81S0 71	Tray Spring		1
32	9KA 82H0 35	Tray Spring Fixing Screw		1
33	9KA 82G1 84	Tube		1
◉ 51	9KA 81A2 93	Spindle Motor Ass'y	Includ T/M, Unit Plate	1
52	9KA 81G9 66	Slide Gear T		1
53	9KA 81A2 90	Feed Motor Ass'y		1
53-1	—	Feed Motor RD-050Y		(1)
53-2	—	Warm Gear T		(1)
54	—	Turn Table Ass'y		1
55	—	S Motor RF-310T114B		1
56	9KS 01W0 56	Push Switch-SPPB-11	Head Sent Limit Switch SW	1
◉ 57	9KH 0PM3	Optical Pick Up Ass'y HOP-M3		1
58	9KA 81H1 07	Slide	Slide Shaft	2
59	9KM 20N0 03	M2×3 Pan Screw		4